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A FLORA OF THE SAN BRUNO MOUNTAINS
SAN MATEO COUNTY, CALIFORNIA

By

Elizabeth McClintock
California Academy of Sciences
San Francisco, California

and

Walter Knight
Regional Parks Botanic Garden
Berkeley, California

In collaboration with

Neil Fahy
Standard Oil Company
San Francisco, California

INTRODUCTION

The San Bruno Mountains in northern San Mateo County and the hills in San Francisco County, California, constitute the northern outliers of the Santa Cruz Mountains. The San Bruno Mountains have remained relatively undisturbed, except for the City of Brisbane and today constitute an "island" entirely surrounded by metropolitan areas. The covering of vegetation on the San Bruno Mountains contains many of the plants which once were found to the north in San Francisco where only fragmentary remnants of the natural vegetation remain. However, the pressure of metropolitan development is moving toward the San Bruno Mountains and soon some of their sections will undergo changes. This flora records the plants to be found there before these changes occur.



FIGURE 1. San Bruno Mountains looking north to the City of San Francisco and Mount Tamalpais, showing locations of faults and fault blocks on the San Francisco Peninsula.

A BIT OF HISTORY (by Neil Fahy)

When members of the Portolá Expedition discovered San Francisco Bay in 1769, they also were the first Europeans to see San Bruno Mountain, the main ridge of the range. Five years later, 1774, Fernando Rivera and four soldiers climbed the mountain and from its summit watched the sunrise across the bay. The mountain was named the following year by Bruno Hecata for his patron saint.

The San Bruno Mountain region included portions of the five Mexican land grants indicated on figure 2. Rancho Buri Buri was granted to José Antonio Sánchez, who as a child rode mule-back from Sonora, Mexico, to San Francisco with Anza in 1776. Sánchez received the grant in 1827 and had it confirmed in 1835. The rancho extended from the salt flats on the Bay west to San Andreas Valley and from Colma south to Burlingame.

The rancho with the longest name also included most of the mountain and the Crocker Hills. Cañada de Guadalupe, la Visitación y Rodeo Viejo included in its name three identifiable places, Guadalupe Valley, the site of Brisbane and Crocker Industrial Park; the Visitacion Valley district of San Francisco; and the old rodeo grounds along Islais Creek from Daly City to the intersection of Alemany Boulevard and Mission Street. The rancho was requested in 1835 by Miguel Sánchez but his petition was denied. However, it was given in the following year to Jacob P. Leese a naturalized Mexican citizen and a prominent



FIGURE 2. Mexican land grants of San Bruno Mountains and vicinity.

figure in early Bay Area history. The southern boundary of Leese's rancho is traced approximately by Hillside Boulevard. Leese later traded the rancho to Robert Ridley for one in Sonoma County but Ridley had financial problems and the rancho was divided and sold. Robert Eaton acquired 70 acres and Alfred Wheeler acquired the rest. After American acquisition, the patent of Henry R. Payson to 5473 acres was approved in 1865. The rancho was further subdivided and in 1872 the Visitacion Land Company had the largest holdings. In 1884 Charles Crocker acquired the holdings of the Visitacion Land Company which were 3814 acres of the original land grant. In the following year he acquired the Wheeler parcel comprising 183 acres lying on the shore of San Francisco Bay. When Crocker's estate was distributed in 1891, his lands passed to the Crocker Estate Company, present owners of the San Bruno Mountains.

Three ranchos touched the northern portion of the San Bruno Mountains. The rancho in Visitacion Valley known as Cañada de Guadalupe y Rodeo Viejo was included in Leese's rancho of 1841 but was later separated from it. In 1865 it was granted to William Pierce. The rancho which contained Bernal Heights, Hunters Point, and the area south to San Bruno Mountain was Rincon de las Salinas y Potrero Viejo (which in translation refers to the corner of the salt marsh and the old pasture). This was granted in 1839-1840 to José Bernal, the son of Juan Bernal, a soldier in Anza's expedition of 1776. The San Miguel rancho, including Mt. Davidson and Twin Peaks, was granted to José de Jesus Noé in 1845.

Several cities have grown up surrounding the mountains. On the north is San Francisco. On the northeastern slope of the higher ridge is Brisbane. Formerly known as Visitacion City, the name Brisbane was adopted when the post office was established in 1931. The name was changed to avoid confusion with the Visitacion Valley district of San Francisco. To the south is South San Francisco, the name used from 1849 through the 1880's for the area between Hunters Point and Islais Creek. The present South San Francisco was founded by a subsidiary of G. F. Swift as a meat packing center. The name was adopted when the area was incorporated in 1908. To the west are Colma and Daly City. Originally, Colma was a stop on the San Francisco-San Jose Railroad. It was called Colma in the 1870's and the name was given to the post office in 1891. Daly City was named in 1911 for John Daly, a local property owner.

TOPOGRAPHY (by Neil Fahy)

"The name 'San Bruno Mountains' [is] given to the short range which extends in a direction diagonal to the peninsula from Sierra Point nearly across to the Pacific." On the north it is "... separated by a low divide from the group of hills on the San Miguel Ranch, to which the name of San Miguel Hills may be given." This is the extent of the San Bruno Mountains as recorded in 1865 by the Geological Survey of California under the leadership of J. D. Whitney. The "hills on the San Miguel Ranch" culminate in Mount Davidson, 929 feet, the highest point in San Francisco.

San Mateo County contains two distinct, northwest-trending mountain ranges separated by the Merced Valley which lies to the southwest and south of the San Bruno Mountains where part of Daly City, all of Colma, and part of South San Francisco are located. The western range, the backbone of the county, is the northern continuation of the Santa Cruz Mountains. The eastern range is the San Bruno Mountain region, with the highest point, Radio Peak, 1314 feet above the sea (fig. 3, no. 33).

The San Bruno Mountain region is itself composed of two parallel, northwest-trending ranges, separated for over half their length by Guadalupe Valley (fig. 3, no. 43). The ranges are united by the ridge or saddle at the northern end of Colma Canyon (fig. 3, no. 36). The southern range, San Bruno Mountain proper, extends from Sierra Point on San Francisco Bay to near San Diego Avenue in San Francisco. It is the higher range and rises abruptly from Merced Valley about 1000 feet in a horizontal distance of $\frac{3}{4}$ of a mile. The northern range, the Crocker Hills (fig. 3, no. 47), extends from Visitacion Point on the bay to the vicinity of the Guadalupe School in San Francisco. Its summit is about 850 feet high.

The region is drained by two main streams and several smaller ones. They are all intermittent. Guadalupe Creek, flowing through Guadalupe Valley, has its headwaters in Wax Myrtle, Dairy, and Romanzoffia ravines (fig. 3, nos. 21,



FIGURE 3. San Bruno Mountains. Key to numbered location on pages 602 and 603.

22, 23). Colma Creek, the other main stream, has its source below the Flower Garden [in April Brook], and flows westward for a short distance, parallel to Guadalupe Valley Parkway, and then enters Colma Canyon. The canyon of Colma Creek makes a deep cleft in the mountain where it enters Merced Valley (at Market Street in Daly City). The minor streams are mainly in ravines on the southwest flank of the southern range. In the Crocker Hills, Islais Creek which bears the Salinan Indian name for the Hollyleaf Cherry (*Prunus ilicifolia*), had its headwaters near today's Mission Drive-In Theater. Houses and freeways have altered its course.

The eastern shoreline of the mountain group during the Mission Period had the bay lapping against the sandstone cliffs. Today the shoreline is bay-fill.

GEOLOGY (by Neil Fahy)

ROCK TYPES

The great bulk of San Bruno Mountain and the Crocker Hills is composed of late Cretaceous (100 million years old) dark greenish-gray graywacke of the Franciscan Formation. This is a poorly sorted sandstone made up of angular rock fragments, detrital chert, and with more than 10 percent feldspar. The angular, unsorted content indicates it was derived from the rapid erosion of the

source area and rapid burial in a subsiding depositional basin. Fossils are rare. The graywacke is exposed in the steep canyons and on the ridge crests but only as isolated knobs on the gentle slopes. Excellent exposures are visible along the Guadalupe Valley Parkway and Radio Road. The Franciscan Formation is the name applied to a group of rock types first described from the San Francisco area.

Small lenses of a hard, brittle, siliceous rock called chert are exposed near Telford and Diamond streets in South San Francisco and at Point San Bruno. The marine origin of the chert is indicated by the abundance of microscopic opaline skeletons of radiolaria, one-celled marine organisms.

Serpentine, the California State rock, outcrops on Point San Bruno, but industrialization has concealed much of it. Two very small serpentine areas are present near Serbian Ravine.

There are areas of poorly consolidated sand at the head of Colma Canyon in The Meadow and along the western base of the mountain. The sand was originally thought to be dune sand but later work has questioned this.

The largest area of recent depositon is in the Guadalupe Valley which contains alluvial deposits eroded from the surrounding hills.

SOIL

Because San Bruno Mountain is composed almost entirely of one rock type, there is little variation in the type of soil. It is all derived from the Franciscan graywacke. The varying factor is the soil depth. The graywacke produces a relatively thin soil on the steep slopes and a thicker soil on the gentle slopes.

FAULTS

The northern portion of the San Francisco Peninsula is composed of a series of northwest-trending earth blocks bounded by faults or zones of weakness. These blocks are named and indicated on figure 1. They are from north to south: the Telegraph Hill block, the San Miguel Hills block, the San Bruno Mountain block, the Cemetery block, and the Merced Valley block. The two which make up the San Bruno Mountain region are the San Bruno Mountain and the Cemetery blocks.

The City College fault, which extends in an arc from Lands End through the City College of San Francisco to the bay at Visitacion Valley, forms the northern boundary of the San Bruno Mountain block. The Hillside fault forms the southern boundary. At present (1967) no fault evidence has been found to account for the abrupt termination of the San Bruno Mountains at Sierra Point. There are, however, many small faults throughout the mountain. The Cemetery block is bounded by the Hillside fault in the north and the Merced Valley in the south.

STRUCTURE

San Bruno Mountain and the Crocker Hills are part of a great asymmetrical

arch or anticline whose axis roughly coincides with Ridge Road. The dipping strata are visible in most of the earth cuts along Radio Road and the Guadalupe Valley Parkway. It should be noted that the strata generally dip away from the mountain.

HISTORY

The San Bruno Mountain landscape began to develop about 130 million years ago in the Cretaceous Period. At that time the western portion of California was beneath a sea whose eastern shore was lapping against the base of the ancestral Sierra Nevada. Great quantities of sediment were deposited in the Cretaceous sea. Some of these sediments can be seen as the rocks of San Bruno Mountain.

The present Coast Range landforms began to form about a million years ago. A buckling of the earth's crust produced fracture zones along which earth blocks moved relative to one another. One of the elevated fault blocks was San Bruno Mountain.

ECONOMIC GEOLOGY

Gold and zinc have been mined from the San Bruno Mountains in past years. The gold occurred in quartz veins in the graywacke. Several uneconomic claims were filed in the Crocker Hills just south of the county line, but little development work was done.

Two veins of zinc ore were discovered near Diamond Avenue in South San Francisco in 1919. A 75-foot shaft was sunk and a 6-foot vein was worked for a few years.

The only mineral products from the mountain at present are crushed rock and sand.

CLIMATE AND WEATHER

Weather data for the San Bruno Mountains which was supplied by the Crocker Land Company¹ confirmed observations made on our plant collecting forays. The San Bruno Mountains stand alone on the San Francisco Peninsula, unprotected from the atmospheric conditions which bring about their weather pattern (see figure 4).

WIND. Wind on the San Bruno Mountains displays the marked diurnal and seasonal patterns which characterize the San Francisco Peninsula. However, data for March to June 1967, taken from the Crocker Hills Survey (p. 11), show that wind speeds are greater at comparable times at a site on the mountain area than in the nearby City of San Francisco. Wind speeds are less in mornings

¹ Climate Survey of San Bruno Mountain. Phase 2: On-site Survey of Crocker Hills Climate. Aerosol Laboratory, Metronics Associates, Inc., Stanford Industrial Park, Palo Alto, California. October 20, 1967. Prepared for Crocker Land Company, San Francisco, California, and used with their permission.



FIGURE 4. Aerial view of the San Francisco Peninsula looking west and north with the San Bruno Mountains in the middleground. The San Francisco Airport is in the immediate foreground.

and increase from early to mid-afternoon. Speeds are greater in June than in March. Matched data are given below:

TABLE 1. *Mean Wind Speeds—Crocker Hills vs. San Francisco City* (page 11, Crocker Hills Survey).

1967	10 A.M. P.S.T.		1 P.M.		4 P.M.	
	CH	SF	CH	SF	CH	SF
March	10	8	13	10	13	12
April	10	9	12	12	13	12
May	11	9	13	14	15	15
June	13	9	15	14	18	16

Visitors to the San Bruno Mountains will notice that some sites are more windy than others owing to its irregularity of terrain and the distribution of the several colonies of planted trees. Available data show that some of the windiest sites, obviously those most exposed, are: (1) the 1314-foot summit, (2) the junction of Radio Road and the road to the Nike Base, and (3) the Nike Base. Kamchatka Point which always seemed to us to be very windy and bleak was actually less windy than these three sites.

Data for wind speeds at night on the highest and most exposed points, such

as the 1314-foot summit and the long ridge to the east, are not available. However, on nights when winds were known to be strong at these sites, it was estimated from known recorded speeds for Mount Tamalpais, in nearby Marin County, that wind speeds on the San Bruno Mountains summit and ridge may have reached to 50 to 80 miles per hour in gusts up until midnight.

Wind direction varies with the time of the day and with the season. During winter the morning to afternoon pattern is frequently north becoming northwest, and a change to a southerly direction indicates that stormy weather can be expected. During summer months wind flow is frequently southwest becoming west.

Fog. An extensive low fog cover is dominant over the San Bruno Mountains during the months of July through August when the summer fog regime prevails along the central California coast. The fog cover, however, does not usually extend over the entire area of the mountains during an entire day, but tends to cover only the western section while the eastern section, with Guadalupe Valley and the City of Brisbane, frequently remain in the sunshine. Data from the Crocker Hills Survey, page 17, comparing the number of foggy days between a site in Guadalupe Valley and a site in the Crocker Hills, show that in the months from March to May the Crocker Hills site was foggier on 30 percent of the days, and in June to July on 79 percent of the days, than at the Guadalupe Valley site. Frequently during afternoons the fog bank has been observed for several hours in a practically stationary position over the western half of the mountain area. During these periods the fog lies so close to the ground that a moisture drip is produced from the trees of *Eucalyptus globulus*.

TEMPERATURE. The generally cool and mild temperatures characteristic of the coastal part of the San Francisco Peninsula prevail on the San Bruno Mountains. "The seasonal range of temperature is small, in keeping with the predominant flow of marine air over the site. Mean daily maximums range from about 56° F. in winter to about 66° F. in fall. Mean daily minimums are above freezing during all months. However, several daily minimums below freezing are to be expected during the winter and early spring, particularly on clear, quiet nights when extensive cold-air drift occurs in the gullies and canyons. The lowest minimum temperature likely over the long term is 20° F.

"The elevation of the site tends to produce lower summer temperatures and warmer winter temperatures on the average than found at nearby sea-level stations. For example, summer fog on the site is associated with afternoon temperatures near 52° F., while sea level temperatures are frequently 5 degrees higher at the San Francisco airport and 20 degrees higher at Palo Alto (20 miles to the south). Warmer winter site temperatures are likely on the slopes and knolls in the morning hours whenever the general wind regime is weak (about 1/3 of the time). Under these conditions the exposed parts of the site are frequently in or near the upper and warmer part of the radiation inversion layer that begins at sea level." (Crocker Hills Survey, Appendix A, page 3.)

RAINFALL. "Total yearly rainfall on the site is estimated to be somewhat

greater than at San Francisco or about 22 inches. . . . The mean number of days per year with measurable rain (snow is rare) is about 66, mostly during the months November–April.” (Crocker Hills Survey, Appendix A, page 3.) Rain is rare during the remainder of the year.

VEGETATION

The area of the San Bruno Mountains covered by this flora contains about 3000 acres and reaches 1314 feet at the highest point. Although a relatively small area, the topography is sufficiently irregular to provide suitable habitats for four of the plant communities which occur in the Santa Cruz Mountains. These are grassland, coastal scrub, foothill woodland, and salt marsh. Grassland covers the largest portion of the area, all of the Crocker Hills, the entire southeastern slopes, and most of lower western slopes of the taller southern range. A mixture of native and introduced grasses and such associates as *Brodiaea laxa*, *B. pulchella*, *Sisyrinchium bellum*, *Ranunculus californicus*, *Lupinus nanus*, *L. bicolor*, *Sidalcea malvaeflora*, *Sanicula arctopoides*, *Plantago erecta*, and *Baeria chrysostoma* may be found in this plant community.

Coastal scrub occurs in some of the ravines and canyons such as Colma Canyon, the upper part of Buckeye Canyon, and Islay Ravine. Some of the characteristic species are: *Anaphalis margaritacea*, *Achillea millefolium*, *Artemisia californica*, *Eriogonum latifolium*, *Baccharis pilularis* var. *consanguinea*, *Diplacus aurantiacus*, *Rhus diversiloba*, and *Lupinus arboreus*.

Coastal woodland is best developed in lower Buckeye Canyon. *Aesculus californica*, *Quercus agrifolia*, and *Umbellularia californica* make a fairly dense woodland.

The Salt Marsh community occurs at Point San Bruno and Sierra Point but little of it remains today.

COLMA CANYON WATERSHED

Colma Canyon is accessible from the eastern end of Market Street in Daly City. In late 1964 a paved road called Guadalupe Parkway was completed along the floor of the canyon and from there to the junction with Radio Road. The thoroughfare now continues along the southeast edge of the Crocker Hills and joins old Bayshore Highway north of Brisbane.

The construction of Guadalupe Parkway left the steep slopes of Colma Canyon, with its floristically interesting plant cover, unchanged, but it did change the course of Colma Creek. Originally only a foot trail wound along the creek. Equestrians and hikers would meander through the vegetation along the water's edge. The creek ran all year around and occasional pools would invite youthful swimmers who would be secluded by the overhanging boughs of Coulter and arroyo willows, salmonberry, lady fern, twinberry, snowberry, and creek dogwood which provided shelter from the brisk afternoon winds.

Along the present parkway on the lower slopes of the canyon can still be seen elegant displays of lady ferns, salmonberries, and Coulter willow. Creek dogwood, however, no longer remains due to construction of the parkway. Along the canyon sides from the creek to the ridges, particularly in the vicinity of the rocky outcroppings one can find coast barberry (*Berberis pinnata*), poison oak (*Rhus diversiloba*), red berry (*Rhamnus crocea*), holly leaf cherry (*Prunus ilicifolia*), California polypody (*Polypodium californicum*), spreading dudleya (*Dudleya cymosa*), bluff lettuce (*Dudleya farinosa*), Pacific stonecrop (*Sedum spathulifolium*), seaside daisy (*Erigeron glaucus*), rock cress (*Arabis blepharophylla*), and serviceberry (*Amelanchier pallida*).

At the mouth of Colma Canyon, especially on the south side, is a sand deposit reminiscent of the former dune areas in the western part of San Francisco. Here are found typical coastal dune plants such as yellow beach lupine (*Lupinus arboreus*), blue beach lupine (*Lupinus chamissonis*), sand mat (*Cardionema ramosissimum*), California whitlowwort (*Paronychia franciscana*), spine-flower (*Chorizanthe pungens* var. *hartwegii*), and dune knotweed (*Polygonum paronychia*). This dune area continues through the mountain to the southeast and appears again at the mouth of Pig Ranch Ravine. Besides a partial representation of the Colma Canyon dune plants, this odoriferous ravine is the only locality on the mountain for the California croton (*Croton californicus*).

As one proceeds up Colma Canyon in the areas where the soil has accumulated humus in the decomposed sandstone, the vegetation cover consists of a soft chaparral interspersed with herbs and grasses. This vegetation, which also inhabits the little side ravines fingering out from the canyon, includes buckwheat (*Eriogonum latifolium*), California sagebrush (*Artemisia californica*), sticky monkeyflower (*Diplacus aurantiacus*), dwarf chaparral broom (*Baccharis pilularis*), phacelia (*Phacelia californica*), pennyroyal (*Monardella villosa* var. *franciscana*).

There are no trees in the canyon proper but introduced eucalyptus (*Eucalyptus globulus*) and cypress (*Cupressus macrocarpa*) trees are to be seen along Radio Road. Many of the cypresses have their trunks adorned with the leather fern (*Polypodium scolieri*) growing as an epiphyte as high as 20 feet. This epiphytic habitat is probably subsidized by the extreme moisture from the heavy fogs which roll through the entrance of Colma Canyon. For this reason, the cypress grove has been called the Fog Forest.

The upper part of Colma Canyon opens into a large slightly sloped flat area, which we call the Great Meadow, a grassland punctuated with an occasional dark green prostrate mat of the dwarf chaparral broom (*Baccharis pilularis*). Along the broad upper slopes draining into the Great Meadow are sheets of dark yellow color in July consisting of lizard tail (*Eriophyllum staechadifolium*). In August on adjacent slopes there are spreading white blankets of pearly everlasting, California's most beautiful cudweed (*Anaphalis margaritacea*).

To the south of the Great Meadow extending gradually uphill for about a mile is April Brook Ravine. April Brook is damp during all the seasons of the year and it empties into Colma Creek near a colony of Coulter willows (*Salix coulteri*) just below the Great Meadow. The drainage areas of April Brook Ravine are more gradual than the more steep slopes of Colma Canyon.

In the spring, on the eastern slopes of April Brook Ravine, there are sizeable colonies of goldfields (*Baeria chrysostoma*), which well substantiate the common name. In colonies equally as large are white masses of johnny-tuck (*Orthocarpus erianthus*). On occasional slopes between Radio Road and April Brook are colonies of both coast iris (*Iris longipetala*) and Douglas iris (*Iris douglasiana*). Even though their flowering times partially overlap, there has never been evidence of any interbreeding between the two irises. Also in this area the two native wild strawberries, *Fragaria californica* and *F. chiloensis*, occur together.

An unusual distributional record in the April Brook drainage area is the occurrence of the dune tansy (*Tanacetum camphoratum*) at the edge of Radio Road near Summer Seep. In this same watershed are serviceberry (*Amelanchier pallida*), coffeeberry (*Rhamnus californica*), and Indian hemp (*Apocynum pumilum*).

The only other sizeable area draining ultimately into Colma Canyon is Cable Ravine. It is accessible from Radio Road about a half mile south of Guadalupe Parkway intersection at a eucalyptus grove. Up this little ravine is the only locality hereabouts of salal (*Gaultheria shallon*) on a very prominent rocky outcrop which overlooks the lower reaches of the ravine. Progressing up the slope one can see in spring, colorful yellow patches of johnny-jump-up (*Viola pedunculata*). Nearby is the best display of bearberry manzanita (*Arctostaphylos uva-ursi*) on the entire mountain forming a ground-hugging drape as it clings to the exposed grassy slope.

THE RIDGE AND ITS RAVINES

A gravel-surface road extends for two miles east of the parking lot along the ridge. Both ends of the ridge are bisected by high voltage transmission lines. In spring on the south-facing slopes at the western end of the mountain are many plants of the bright red Indian paint brush (*Castilleja franciscana*), and during late spring and early summer crimson sage (*Salvia spathacea*) displays itself over a considerable acreage.

If one can endure the strenuous descent into the brushy ravines, thickets of poison oak (*Rhus diversiloba*) can be found with some plants almost arboreal in habit having trunks up to 11 inches in diameter. From the ravines, *Ceanothus thrysiflorus* extends in large colonies up to the ridge road and in April its large clusters of blue flowers are a striking contrast against the dark green foliage.

The southeastern section of the mountain is almost exclusively grassland.

The north-facing slopes include ridges and ravines that are brushy in vary-

ing degrees with only a small amount of grassland. Starting near Brisbane and progressing toward the quarry California buckeyes, California laurels, California live oaks, and holly-leaf cherry are found in the ravines. Between the quarry and westward toward the parking lot and Radio Road can be seen a brushy mantle of vegetation consisting of evergreen huckleberry, manzanitas, and other woody plants interspersed with herbaceous perennials such as coast larkspur (*Delphinium californicum*), coast angelica (*Angelica hendersonii*), several species of *Lomatium* and *Sanicula*, and in the spring *Heracleum maximum* conspicuously whitens the ravines.

To the west of Lipman School in Brisbane is the base of the densely wooded ravine which we call Buckeye Canyon. California buckeyes occur along the intermittent creek in the lower part of the ravine. Advancing up the slope from the creek are shrubs of chaparral currant (*Ribes malvaceum*) and above these California laurels (*Umbellularia californica*) dominate the plant cover of the canyon. On the upper slopes of the canyon particularly around rocky outcroppings are low shrubs of the gold-cup oak (*Quercus chrysolepis* var. *nana*).

On a windy promontory on the down-side of Radio Road as one approaches the first radio station, there is an area which is frequently so cold and windy that it has been named Kamchatka Point. Among the plants here are two unusual manzanitas, the evergreen huckleberry, and a deciduous huckleberry which we consider to be *Vaccinium arbuscula*, and another rarity, false lily-of-the-valley (*Maianthemum dilatatum*).

GUADALUPE VALLEY

Crocker Industrial Park now covers most of the valley. On the west end of the drainage are the botanically interesting Fern Rock and Wax Myrtle Ravine. Around Fern Rock are coastal wood fern (*Dryopteris arguta*), leather fern (*Polypodium scolieri*), western sword fern (*Polystichum munitum*), bracken fern (*Pteridium aquilinum*), and chain fern (*Woodwardia fimbriata*). In the ravine are fine specimens of wax myrtle (*Myrica californica*), and several herbaceous annuals and perennials including bleeding heart (*Dicentra formosa*). At the upper part of the ravine below the new Guadalupe Parkway are pitcher sage (*Lepechinia calycina*), cascading, compact shrubs of redberry (*Rhamnus crocea*), and low dwarf shrubs of gold-cup oak (*Quercus chrysolepis* var. *nana*).

At the southwestern end of the valley is a large active quarry forming a wide chasm where it penetrates the main mountain ridge. Recent enlargement of the quarry eliminated a thicket of shrubs in which were creek dogwood (*Cornus californica*) and coast red elderberry (*Sambucus callicarpa*).

CROCKER HILLS

This area constitutes the range of hills running east to west from the old Bayshore Highway to the spot designated on the aerial photograph as Reservoir Hill (fig. 3). It has a largely introduced and weedy collection of plants ac-

cented here and there by the spiny European gorse (*Ulex europaeus*). Despite its obnoxious qualities, the prolificly flowering gorse makes a dark yellow expanse of color in spring contrasting with adjacent sky lupine (*Lupinus nanus*) and two adventive members of the mustard family, wild radish (*Raphanus sativus*), and field mustard (*Brassica campestris*). An interesting concentration of plants abounds at Reservoir Hill in the spring and the little area should be visited at that time.

POINT SAN BRUNO

Within the last 5 years much grading and filling has been done on this point of land which extends into the bay. It is a continuation of San Bruno Mountain and extends across the freeway. The interesting plants here were of a coastal strand type with wind-shorn, low-growing buckeye trees and willows along the top of the bluffs. Most of the bay below the bluffs has been filled. Little salt flat coves originally supported pickleweed (*Salicornia pacifica*), arrowgrass (*Triglochin concinna*), sea lavender (*Limonium californicum*), and *Jaumea carnosa*, but these are disappearing in the path of development.

REGENERATION OF PLANTS AFTER FIRE

Most plants of chaparral and coastal scrub are characterized by their ability to regenerate after fire by sprouting from root crowns. These basal structures are usually noticeably enlarged at, or just below, the ground level. Other plants not reproducing by crown sprouts sometimes produce abundant seedlings after a fire. During our four years of plant collecting on the mountain there have been fires in different areas. Listed here are the plants which we have observed to regenerate after some of these fires:

Plants stump sprouting after fire:

<i>Arctostaphylos pacifica</i>	<i>Quercus wislizeni</i>
<i>Baccharis pilularis</i>	<i>Rhamnus californica</i>
<i>Ceanothus thyrsiflorus</i>	<i>Rosa gymnocarpa</i>
<i>Diplacus aurantiacus</i>	<i>Rubus parviflorus</i>
<i>Heteromeles arbutifolia</i>	<i>Salix lasiolepis</i>
<i>Holodiscus discolor</i>	<i>Salvia spathacea</i>
<i>Monardella villosa</i> var. <i>franciscana</i>	<i>Sambucus callicarpa</i>
<i>Osmaronia cerasiformis</i>	<i>Symphoricarpos</i> species
<i>Prunus emarginata</i>	<i>Vaccinium ovatum</i>

Plants seeding abundantly after fire:

<i>Arctostaphylos imbricata</i>	<i>Grossularia californica</i>
<i>Arctostaphylos montaraensis</i>	<i>Lepechinia calycina</i>
<i>Artemisia californica</i>	<i>Ribes malvaceum</i>

PLANTS OF SAN BRUNO MOUNTAIN USED AS ORNAMENTALS

Many of the colorful and attractive California native plants which are used as garden ornamentals may be seen in their native habitats on the San Bruno

Mountains. In the San Francisco Bay region are three botanical gardens where many of the San Bruno plants may be seen growing under garden conditions and where information regarding their culture may be obtained. Tilden Regional Park Botanic Garden, Berkeley, devoted entirely to growing and displaying California native plants, grows all of the plants which are listed here. The University of California Botanical Garden, Berkeley, and the Strybing Arboretum, Golden Gate Park, San Francisco, have sections devoted to California natives and some of the plants listed here may be seen at both gardens:

<i>Allium dichlamydeum</i>	<i>Holodiscus discolor</i>
<i>Allium unifolium</i>	<i>Iris douglasiana</i>
<i>Anaphalis margaritacea</i>	<i>Iris longipetala</i>
<i>Arabis blepharophylla</i>	<i>Maianthemum dilatatum</i>
<i>Arbutus menziesii</i>	<i>Myrica californica</i>
<i>Arctostaphylos uva-ursi</i>	<i>Osmaronia cerasiformis</i>
<i>Aristolochia californica</i>	<i>Physocarpus capitatus</i>
<i>Baccharis pilularis</i>	<i>Potentilla egedii</i> var. <i>grandis</i>
<i>Berberis pinnata</i>	<i>Prunus demissa</i>
<i>Brodiaea laxa</i>	<i>Prunus emarginata</i>
<i>Ceanothus thyrsiflorus</i>	<i>Prunus ilicifolia</i>
<i>Clarkia rubicunda</i>	<i>Ribes malvaceum</i>
<i>Cornus californica</i>	<i>Romanzoffia suksdorfii</i>
<i>Delphinium californicum</i>	<i>Rosa californica</i>
<i>Dicentra formosa</i>	<i>Rosa gymnocarpa</i>
<i>Diplacis aurantiacus</i>	<i>Rubus parviflorus</i>
<i>Dudleya cymosa</i>	<i>Rubus spectabilis</i>
<i>Dudleya farinosa</i>	<i>Satureja douglasii</i>
<i>Erigeron glaucus</i>	<i>Sedum spathulifolium</i>
<i>Erigeron philadelphicus</i>	<i>Sisyrinchium bellum</i>
<i>Erysimum franciscanum</i>	<i>Thalictrum polycarpum</i>
<i>Eschscholzia californica</i>	<i>Trillium chloropetalum</i>
<i>Fragaria californica</i>	<i>Vaccinium arbuscula</i>
<i>Fragaria chiloensis</i>	<i>Vaccinium ovatum</i>
<i>Garrya elliptica</i>	<i>Viola adunca</i>
<i>Heteromeles arbutifolia</i>	<i>Viola pedunculata</i>
<i>Heuchera micrantha</i>	<i>Zauschneria californica</i>

PLANT COLLECTIONS

The collections on which this flora is based were begun early in 1963. They were made by Walter and Irja Knight (cited in the Catalogue of Plants as K), E. McClintock (cited as McC), Philip Wheeler (cited as W), Javier Peñalosa (cited as P), Carlyn Halde, Virginia Ryder, J. H. Thomas, Peter Raven, Katherine Toschi, Arthur Menzies, James B. Roof, and Lewis Rose. The cited specimens are deposited in the Herbarium of the California Academy of Sciences except those collected by J. H. Thomas which are in the Dudley Herbarium, Stanford University.

PLACE NAMES

When we began our plant collecting on San Bruno Mountain in early 1963 we found that there were only a few place names in general use for parts of the mountain. Since we needed to designate our collecting localities we assigned our own names to these places. Most place names regardless of their origin are listed here and are located approximately on the aerial photograph of the mountain region (fig. 3).

April Brook	2	Monterey Pine	20
Bitter Cherry Ridge	1	Nike Base	32
Blue Blossom Hill	25	Olivet Cemetery	10
Brisbane	40	Olivet Ravine	6
Brisbane Ravine	29	Owl's Canyon	26
Buckeye Canyon	28	Parking Lot at summit	33
Cable Ravine	39	Pig Ranch Ravine	7
Colma Canyon	36	Point San Bruno	44
Cow Trough Ravine	15	Poison Oak Ravine	12
Crocker Avenue	46	Powerlines, East and West	34
Crocker Hills	47	Quarry watershed	5
Crocker Industrial Park	43	Radio Road	37
Dairy Ravine	22	Randolph Ravine, end Randolph Avenue	16
Devil's Arroyo	35	Reservoir Hill	41
Eucalyptus Grove	18	Ridge Road	38
Fern Rock	19	Romanzoffia Ravine	23
Flower Garden	3	Sage Ravine	11
Fog Forest	17	Serbian Cemetery	9
Gladys Ravine	30	Serbian Ravine (serpentine)	8
Glen Park Ravine in Brisbane	48	Sierra Point	45
Guadalupe Valley	43	Summer Seep	42
Islay Ravine	27	Tank Ravine	13
Juncus Ravine	14	Trillium Gulch	31
Kamchatka Point	4	Wax Myrtle Ravine	21
Manzanita Dike	24		
1 Bitter Cherry Ridge		26 Owl's Canyon	
2 April Brook		27 Islay Ravine	
3 Flower Garden		28 Buckeye Canyon	
4 Kamchatka Point		29 Brisbane Ravine	
5 Quarry watershed		30 Gladys Ravine	
6 Olivet Ravine		31 Trillium Gulch	
7 Pig Ranch Ravine		32 Nike Base	
8 Serbian Ravine (serpentine)		33 Parking Lot	
9 Serbian Cemetery		34 Powerlines, East and West	
10 Olivet Cemetery		35 Devil's Arroyo	
11 Sage Ravine		36 Colma Canyon	
12 Poison Oak Ravine		37 Radio Road	
13 Tank Ravine		38 Ridge Road	
14 Juncus Ravine		39 Cable Ravine	
15 Cow Trough Ravine		40 Brisbane	

16 Randolph Ravine, end Randolph Avenue	41 Reservoir Hill
17 Fog Forest	42 Summer Seep
18 Eucalyptus Grove	43 Crocker Industrial Park in Guadalupe Valley
19 Fern Rock	44 Point San Bruno
20 Monterey Pine	45 Sierra Point
21 Wax Myrtle Ravine	46 Crocker Avenue
22 Dairy Ravine	47 Crocker Hills
23 Romanzoffia Ravine	48 Glen Park Ravine in Brisbane
24 Manzanita Dike	
25 Blue Blossom Hill	

TABLE 2. *Tabulation of the Vascular Plants.*

<i>Division</i> <i>Class</i> <i>Subclass</i>	<i>Family</i>	<i>Genus</i>	<i>Species</i> <i>Native</i>	<i>Introduced</i>	<i>Total</i>
Calamophyta	1	1	2		2
Pterophyta					
Filicinae	1	8	9		9
Gymnospermae	2	2		2	2
Angiospermae					
Monocotyledoneae	10	52	69	28	97
Dicotyledoneae	64	256	304	128	432
			384	158	542
			71%	29%	

TABLE 3. *List of the 10 largest families of vascular plants.*

<i>Family</i>	<i>Number of genera</i>	<i>Number of species</i>
Compositae	52	90
Gramineae	27	49
Cruciferae	18	25
Rosaceae	15	23
Leguminosae	13	42
Umbelliferae	13	18
Scrophulariaceae	9	19
Caryophyllaceae	9	17
Liliaceae	10	15
Labiatae	10	13

TABLE 4. *List of the largest genera.*

	<i>Number of species in each genus</i>
<i>Lupinus, Trifolium</i>	10
<i>Juncus</i>	8
<i>Rumex, Senecio</i>	7
<i>Carex, Festuca, Gnaphalium, Orthocarpus</i>	6
<i>Bromus, Lotus</i>	5

ACKNOWLEDGMENTS

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ANNOTATED CATALOGUE OF VASCULAR PLANTS

In the Flora of the San Bruno Mountains we have, in most instances, used the plant names in the Flora of the Santa Cruz Mountains of California by John Hunter Thomas (in 1961). Keys to the nearly 550 different kinds of plants of the San Bruno Mountains have not been included here since those in the Flora of the Santa Cruz Mountains are applicable. For ease of use by both amateur and professional botanists the sequence of families within their divisions, classes, and subclasses is alphabetical.

DIVISION CALAMOPHYTA

EQUISETACEAE. Horsetail Family

Equisetum arvense Linnaeus. Common Horsetail. Rare, on wet ground. Colma Canyon, *K May 30, 1964*; Radio Road, *W May 23, 1965*.

Equisetum telmateia J. F. Ehrhart var. *braunii* (Milde) Milde. Giant Horsetail. Occasional, along streams and seepages. Colma Canyon, *McC, Halde, K June 23, 1963*; Cow Trough Ravine, *K 341*; Devil's Arroyo, *McC March 28, 1965*; Quarry, *K July 14, 1963*; Radio Road, *K August 5, 1963*.

DIVISION PTEROPHYTA

CLASS FILICINAE

POLYPODIACEAE. Fern Family

Adiantum jordani K. Mueller. California Maidenhair Fern. Occasional, in damp protected places. Quarry, *K July 14, 1963*; Romanzoffia Ravine, *McC, Menzies February 16, 1963*; Owl's Canyon, *K 1049*; Colma Canyon, *K March 15, 1964*; Glen Park Canyon, *McC, W May 14, 1967*.

Athyrium filix-femina (Linnaeus) Roth. Western Lady Fern. Rare, in wet gullies. Base of Quarry, *K July 14, 1963*; Colma Canyon, along creek, *McC, Halde, K June 23, 1963*.

Dryopteris arguta (Kaulfuss) Watt. Coastal Wood Fern. Occasional, brushy, well drained slopes. Buckeye Canyon, *K August 5, 1963*; Fern Rock, *K July 14, 1963*; Powerline Ridge, *McC & K September 2, 1965*; 400 feet northeast of Parking Lot, *K February 28, 1963*; Quarry, *K July 14, 1963*.

Pityrogramma triangularis (Kaulfuss) Maxon. Goldenback Fern. Rare, shaded well drained slopes. Dies back during winter. Harold Road, Brisbane, *W December 30, 1966*; Glen Park Canyon above Brisbane, *McC April 16, 1967*.

Polypodium californicum Kaulfuss. California Polypody. Occasional, rocky slopes. Cable Ravine, *McC March 14, 1965*; ravine $\frac{1}{2}$ mile east of 1314-foot summit, *P 2700*; Romanzoffia Ravine, *McC, Menzies February 16, 1963*; Glen Park Canyon, *McC April 16, 1967*.

Polypodium scouleri Hooker & Greville. Leather Fern. Occasional, crevices and surfaces of rocks and on tree trunks in Fog Forest. Fern Rock, *K August 5, 1963*; Fog Forest, on trunk of Monterey cypress, *K September 2, 1964*; Fog Forest, on trunk of blue gum, *McC, Halde June 23, 1963*; Cable Ravine, *McC March 14, 1965*.

Polystichum munitum (Kaulfuss) Presl. Western Sword-Fern. Common, in brushy and rocky areas. April Brook, *W July 7, 1965*; Colma Canyon, *K March 15, 1964*; Fern Rock, *K August 5, 1963*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; West Powerline, *McC March 28, 1965* (plants growing in an area burned during preceding autumn, were sprouting from crown); Trillium Gulch, *McC March 28, 1965*.

Pteridium aquilinum (Linnaeus) Kuhn var. *pubescens* Underwood. Bracken Fern. Widespread in grassland and on brushy slopes. Cable Ravine, *McC March 14, 1965*; Colma Canyon, *McC, Halde, K June 23, 1963*; Fern Rock, *K August 5, 1963*; West Powerline, *McC March 28, 1965*; slope below Parking Lot, *McC June 9, 1963*; east of Quarry, *W June 19, 1965*; Radio Road at Horseshoe Ridge, *K August 5, 1965*.

Woodwardia fimbriata J. E. Smith. Western Chain Fern. Rare, in moist places. Colma Canyon, *W May 18, 1965*.

CLASS GYMNOSPERMAE
CUPRESSACEAE. Cypress Family

Cupressus macrocarpa Hartweg. Monterey Cypress. Large trees probably planted many years ago; some young trees spontaneous. Fog Forest along Guadalupe Road, *K August 5, 1963*.

PINACEAE. Pine Family

Pinus radiata D. Don. Monterey Pine. Single young tree, probably planted. Cable Ravine, *K September 30, 1964*.

CLASS ANGIOSPERMAE
SUBCLASS DICOTYLEDONEAE
AIZOACEAE. Carpet-weed Family

Mesembryanthemum edule Linnaeus. Hottentot-Fig. Planted as a groundcover and occasionally becomes naturalized as along Radio Road. Flowers spring and summer. Ornamental. Useful on banks and roadcuts. Native of South Africa.

Tetragonia tetragonoides (Pallas) Kuntze [*Tetragonia expansa* Murray]. New Zealand Spinach. Cultivated for food, it escapes and becomes naturalized in disturbed and marshy areas. Point San Bruno, *K, McC September 2, 1964*; Brisbane Lagoon, *W August 14, 1965*; trash dumps at west end of mountain, *K 1081*. Native of southeastern Asia, Australia, and New Zealand.

AMARANTHACEAE. Amaranth Family

Amaranthus powellii Watson. Amaranth. Pig-Weed. Weed in disturbed areas. Abandoned quarry, near Hillside Boulevard and School Street, *K October 7, 1963*.

ANACARDIACEAE. Sumac Family

Rhus diversiloba Torrey & Gray. Poison-oak. Shrub with 3-foliolate leaves. It is variable in habit from subarborescent to shrubby and climbing, and in leaf shape and size. One of the common plants of the mountain, usually occurring with chaparral shrubs but in one locality, on a south facing slope at the base of Blue Blossom Hill, it occurs alone. The foliage turns reddish in autumn and is showy. Contact with any part of the plant may cause a dermatitis in those individuals who are susceptible.

Schinus molle Linnaeus. Pepper Tree. Cultivated as an ornamental tree, occasionally becomes naturalized. Old Bayshore Highway, Brisbane, *W October 16, 1966*. Native of South America.

APOCYNACEAE. Dogbane Family

Apocynum pumilum (Gray) Greene. Dogbane. Indian-Hemp. Rare, in grassy or rocky areas. Radio Road at Summer Seep, *K August 5, 1963*; Radio Road, above Great Meadow, *W June 20, 1965*.

Vinca major Linnaeus. Periwinkle. Cultivated as a groundcover, escapes and becomes naturalized. Near Bayshore Highway, Brisbane, *W June 8, 1965*. Native of Mediterranean region.

ARALIACEAE. Aralia Family

Hedera helix Linnaeus. English-Ivy. Cultivated as a vine or groundcover, escapes and becomes naturalized. Radio Road, near radio towers, *W June 13, 1965*. Native of Europe.

ARISTOLOCHIACEAE. Aristolochia Family

Aristolochia californica Torrey. Dutchman's Pipe. California Pipe Vine. Rare, grassy slope with scattered shrubs, growing on the ground or scrambling over shrubs. Edge of southern ravine of Glen Park Canyon, *McC, W May 14, 1967*. Deciduous scandant shrub with characteristically U-shaped flowers, February to May. It is interesting because of the unusual shape of its flowers which in some species are shaped like a pipe. *Aristolochia californica* is a California endemic from the northern half of the state, San Bruno being its southernmost known locality. *Aristolochia*, a large genus of about 450 species distributed mainly in tropical and subtropical regions, has pendulous flowers of an extraordinary form, often disagreeable odor, and complicated pollination mechanisms. Several, including *A. californica*, are used as garden and greenhouse subjects for their unusual flowers.

BERBERIDACEAE. Barberry Family

Berberis pinnata Lagasca [*Mahonia pinnata* (Lagasca) Fedde]. Coast Barberry. Frequent at rock outcroppings. In open windswept habitats it tends to be low-growing. Reservoir Hill, *Menzies March 14, 1965*; Radio Road at Horseshoe Ridge, *K August 5, 1963*; Radio Road near radio towers, *McC, Menzies February 16, 1963*; Nike Base, *K March 15, 1964*; Quarry, *K 982*; Colma Canyon, *McC, Halde, K June 23, 1963*; Ridge Road near West Powerline, *McC, K September 2, 1963*. Flowers March to May. Attractive evergreen shrub throughout the year; the yellow flowers are showy in the spring and the new foliage which precedes the flowers is glossy and reddish-green. Ornamental.

BETULACEAE. Birch Family

Corylus californica (A. DeCandolle) Rose. California Hazel. Occasional, in ravines or along creeks. Colma Canyon, *K March 15, 1964*; upper Bitter Cherry Ravine in a thicket, *K 1110*; Quarry, *K June 24, 1963*; Owl's Canyon, *W June 7, 1965*. One of the mountain's interesting deciduous shrubs with flowers in pendant catkins in early spring before the leaves, and small edible nuts in autumn. Ornamental.

BORAGINACEAE. Borage Family

Allocarya chorisiana (Chamisso) Greene. Rare, in damp ground. Point San Bruno, *K April 24, 1965*; Devil's Arroyo, *K 1100*; Ridge Road at West Powerline, *McC, K May 16, 1965*; Upper Colma Canyon, *McC, W June 11, 1967*.

Amsinckia intermedia Fischer & Meyer. Fiddleneck. Frequent in grassland and disturbed areas. Colma Canyon, *McC, Halde, K June 23, 1963*; Bitter Cherry Ridge, *K May 4, 1964*; Romanzoffia Ravine, *K May 4, 1964*; Devil's Arroyo, *K 1089*; Owl's Canyon, *K 1088*; Ridge Road at West Powerline, *K April 13, 1964*; Ridge Road at Brisbane Powerlines, *K March 21, 1965*; Brisbane Ravine, *W March 30, 1965*.

Cryptantha hispidissima Greene. Rare, in grassland. Devil's Arroyo, *K 1124*; Quarry, *K July 14, 1963*. A stiff, bristly herbaceous plant, with small white flowers May to July.

Cryptantha micromeres (Gray) Greene. Occasional, edge of chaparral, sometimes in burned over areas. In a ravine to west of Radio Road, *K April 25, 1964*; Trillium Gulch, *McC March 28, 1965*; Devil's Arroyo, *McC March 28, 1965*; West Powerline, *K 1091*. Plants often form dense colonies, and have a profusion of small white flowers, April to June.

Cynoglossum grande Douglas ex Lehmann. Hound's Tongue. Occasional, in grassland and chaparral, sometimes in burned over areas. Ridge Road, in a ravine $\frac{1}{2}$ mile east of Parking Lot, *P 2684*; Romanzoffia Ravine, *K March 21, 1965*; Brisbane Ravine, *W March 30, 1965*; Trillium Gulch, *K 1021*; Glen Park Canyon, *McC, W May 14, 1967*. Sometimes used as an ornamental for its attractive basal leaves and blue, forget-me-not-like flowers, February to April.

Myosotis latifolia Poiret. Forget-me-not. An escape from cultivation, grows along roadsides, stream sides and in shaded areas. Guadalupe Road, *K August 5, 1963*; April Brook, *W May 18, 1965*; Brisbane Ravine, *W May 25, 1965*. Flowers in spring and summer. Native of Europe and North Africa.

CALLITRICHACEAE. Water Starwort Family

Callitriche marginata Torrey. Water Starwort. Rare, floating in water of stream, or on surface of mud at edge of stream. Randolph Ravine, *P 2738*. The tiny green plants are usually numerous enough to be conspicuous, often forming mats.

CAMPANULACEAE. Bellflower Family

Triodanus biflora (Ruiz & Pavon) Greene. Venus' Looking Glass. Rare, in grassland and edge of chaparral. Crystal Cave Canyon, *K 1125*, and *W June 19, 1965*. The small blue to lavender flowers are axillary and sessile, in June. May become weedy.

CAPRIFOLIACEAE. Honeysuckle Family

Lonicera hispidula Douglas ex Lindley. Honeysuckle. Scandant on adjacent plants or sometimes on ground. Rare. Radio Road, *K August 5, 1963*.

Lonicera involucrata (Richardson) Banks ex Sprengel [*L. ledebourii* Eschscholtz]. Twinberry. Rare, along streams and in shade of chaparral. Colma Creek, *McC, Halde, K June 23, 1963*. (Much of Colma Creek was destroyed by road construction, therefore Twinberry may no longer be growing at this locality.) Bitter Cherry Ravine, *K April 4, 1965*. Flowers April to June. Ornamental both in flower and fruit.

Lonicera japonica Thunberg. Japanese Honeysuckle. Escape from cultivation, along roadsides and disturbed places. Crocker Avenue near intersection with Guadalupe Road, *K September 2, 1964*. Native of Japan.

Sambucus callicarpa Greene. Red Elderberry. Rare, brushy ravines, edge of chaparral. Near Olivet Cemetery, *W May 18, 1965*; base of Devil's Arroyo, *McC March 28, 1965*; Quarry, *K June 24, 1963*; Ridge Road near West Powerline, *McC, K September 2, 1963*, and *J. Roof March 27, 1966*. Flowers March and April. Stump sprouts following fire. Ornamental particularly in fruit.

Sambucus mexicana Presl ex DeCandolle. Blue Elderberry. Rare, brushy ravines, edge of chaparral. Quarry, *K June 24, 1963*; Buckeye Canyon, *K August 5, 1963*; Point San Bruno, *K 1029*; Sierra Point, *W May 12, 1965*. Flowers April to June. Ornamental for foliage and blue-black glaucous fruits.

Symphoricarpos albus (Linnaeus) Blake var. *laevigatus* (Fernald) Blake [*S. rivularis* Suksdorf]. Snowberry. Occasional, brushy slopes, edge of chaparral. Stump-sprouts after a fire. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; Radio Road, *McC, K September 2, 1963*; Quarry, *K July 14, 1963*; Colma Canyon, *K May 30, 1964*. Flowers May to August. White fruits in late summer and autumn are more conspicuous than flowers. Ornamental, but spreads vigorously by underground rootstocks, therefore must be kept within bounds.

Symphoricarpos mollis Nuttall. Trailing Snowberry. Rare, brushy slopes, edge of chaparral. Quarry, *K June 24, 1963*; Live Oak Canyon, *W April 27, 1965*. Flowers April to July followed by showy white berries.

CARYOPHYLLACEAE. Pink Family

Arenaria macrophylla Hooker. Sandwort. Rare, rocky outcrop. Kamchatka Point, *McC March 21, 1965*; *J. Roof April 24, 1965*.

Cardionema ramosissimum (Weinmann) Nelson & Macbride. Sand-Mat. Occasional, sandy soil. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Pig Ranch Ravine, *K 1082*; near Olivet Cemetery, *W May 18, 1965*; Crocker Hills, *W May 17, 1965*. Flowers May to June.

Cerastium arvense Linnaeus. Mouse-ear Chickweed. Rare, in grassland. Reservoir Hill, *McC March 14, 1965*; Nike Base, *K May 15, 1965*. Flowers March to May. A showy spring wildflower.

Cerastium viscosum Linnaeus [*C. glomeratum* Thuillier]. Mouse-ear Chickweed. Weed of gardens, roadsides, and disturbed places. Ravine to south of Crocker Avenue, *P 2653*; north slope of San Bruno Mountain above Crocker Avenue, *Toschi 63:16*; above the Quarry, *K July 14, 1963*; West Powerline, *K 948*. Flowers March to July. Native of Europe.

Paronychia franciscana Eastwood. Rare, grassland or rocky slopes. Colma Canyon, *McC, Halde, K June 23, 1963*; near Nike Base, *McC, W May 23, 1965*. Mat forming weedy perennial, inconspicuous flowers May to June.

Polycarpon tetraphyllum (Linnaeus) Linnaeus. Weed of sandy soil and disturbed places. Colma Canyon, *McC, Halde, K June 23, 1963*; Crocker Hills near Cow Palace, *W May 17, 1965*. Native of Europe.

Sagina apetala Arduino var. *barbata* Fenzl ex Ledebour. Pearlwort. Inconspicuous weed of disturbed places, often on hardpacked soil. Ridge Road near West Powerline, *McC April 25, 1965*. Flowers April and May. Native of Europe and Asia.

Sagina occidentalis Watson. Western Pearlwort. Rare, grassland. Ridge Road, near West Powerline, *K 945*; near Nike Base, *McC, W May 23, 1965*. Flowers March to May.

Silene gallica Linnaeus. Windmill Pink. Catchfly. Campion. Pinkish petals are twisted simulating the blades of a windmill. Weed of roadsides and disturbed places. Near Nike Base, *K 697*; Flower Garden near April Brook, *K 976*; Bitter Cherry Ridge, *K April 4, 1965*; east facing slope below Parking Lot, *McC June 9, 1963*; Ridge Road about $\frac{1}{4}$ mile east of Parking Lot, *K 870*; ravine $\frac{1}{2}$ mile east of Parking Lot, *P 2696*. Flowers spring and summer. Native of Europe.

Silene scouleri Hooker subsp. *grandis* (Eastwood) Hitchcock & Maguire [*S. pacifica* Eastwood]. Rare, grassland. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; Quarry, *K July 14, 1963*. Perennial with long taproot, and pink flowers in June and July.

Silene verecunda Watson. Rare, in grassland. Near summit of mountain below radio towers, *W May 11, 1965*.

Spergularia arvensis Linnaeus. Spurry. Weed of fields and disturbed areas. Crocker Avenue, *K August 5, 1963*; Crocker Hills, *K January 8, 1964*; Colma Canyon, *McC June 13, 1965*; April Brook, *McC March 28, 1965*; Ridge Road at West Powerline, *McC March 14, 1965*; ridge above Brisbane, *McC, K September 2, 1963*. Flowers in spring and summer. Native of Europe.

Spergularia macrotheca (Hornemann ex Chamisso & Schlechtendal) Heynhold. Rare, salt-flat bordering San Francisco Bay. Point San Bruno, *McC September 11, 1964*; Sierra Point, *W May 8, 1965*; Brisbane Lagoon, *W June 19, 1965*. Flowers May to September.

Spergularia marina (Linnaeus) Grisebach. Sand Spurry. Rare, salt flat bordering San Francisco Bay or inland. Point San Bruno, *K 984*; Guadalupe Valley, *P 2768*. Flowers spring and summer.

Spergularia rubra (Linnaeus) J. & C. Presl. Sand Spurry. Weed of disturbed places, often in hard-packed soil. Quarry, *K July 14, 1963*; east facing slope below Parking Lot,

McC, Halde June 23, 1963; Crocker Hills near Cow Palace, *W* May 17, 1965; Ridge Road, *K* April 25, 1964. Flowers spring and summer. Native of Europe.

Stellaria media (Linnaeus) Cyrillo. Chickweed. Weed of gardens, fields, and disturbed areas. Guadalupe Road, *K* August 5, 1963; Quarry, *K* July 14, 1963; Crocker Hills, *K* May 4, 1964; Ridge Road, ¼ mile east of Parking Lot, *K* 875; Randolph Ravine, *P* 2746. Flowers in spring and summer. Native of Europe and Asia.

Stellaria nitens Nuttall. Chickweed. Rare, in grassland. Ridge Road at West Powerline, *McC* April 25, 1965; Trillium Gulch, *McC* March 28, 1965.

CHENOPODIACEAE. Goosefoot Family

Atriplex patula Linnaeus var. ***hastata*** (Linnaeus) Gray [*A. hastata* Linnaeus]. Occasional, salt marshes or salt flats, along San Francisco Bay shore or inland. Foothill Boulevard at School Street, *K* October 7, 1963; Crocker Hills, *K* 2041.

Atriplex rosea Linnaeus. Redscale. Weed, salt flat, Point San Bruno, *McC*, *K* September 11, 1964. Native of Eurasia.

Atriplex serenana A. Nelson. Weed, waste ground often forming tangled mats. Brisbane Lagoon, *W* August 14, 1965.

Bassia hyssopifolia (Pallas) Kuntze [*Echinopsilon hyssopifolium* (Pallas) Moquin]. Weed of saline waste places. Brisbane Lagoon, *McC*, *K* September 11, 1964. Native of Asia.

Chenopodium album Linnaeus. Lamb's-Quarters. Pigweed. Weed of waste ground. Brisbane Lagoon, *W* June 19, 1965. Native of Europe. The edible young plants are often cooked as greens.

Chenopodium berlandieri Moquin. Weed of waste ground. Brisbane Lagoon, *W* June 19, 1965. Introduced from southwestern United States and adjacent Mexico. Characterized by an unpleasant odor which is lacking in *C. album*.

Chenopodium californicum (Watson) Watson. Rare, brushy slopes, becoming weedy in disturbed areas. Lower Colma Canyon, *McC*, Halde, *K* June 23, 1963; Pig Ranch Ravine, *W* May 11, 1965.

Chenopodium murale Linnaeus. Disturbed ground. Crocker Industrial Park, *W* June 19, 1965. A common weed throughout North America, unpleasantly scented. Native of Europe.

Roubieva multifida (Linnaeus) Moquin [*Chenopodium multifidum* Linnaeus]. Weed of waste places and roadsides. Lower Colma Canyon, *McC*, Halde, *K* June 23, 1963. Native of Chile.

Salicornia pacifica Standley [*S. virginica* Linnaeus, in part]. Glasswort. Pickleweed. Rare, alkaline and coastal salt flats. Point San Bruno, *McC*, *K* September 11, 1964. A perennial forming large colonies, differing from the following which is an annual having individual plants scattered among the perennial plants of *S. pacifica*.

Salicornia depressa Standley [*S. rubra* A. Nelson; *S. europaea* Linnaeus]. Glasswort. Rare, alkaline and coastal salt flats. Point San Bruno, *McC*, *K* September 11, 1964.

Salsola kali Linnaeus var. ***tenuifolia*** Tausch. Russian Thistle. Weed of disturbed ground. Brisbane Lagoon, *W* June 19, 1965. A common tumbleweed throughout most of California. Native of Eurasia.



FIGURE 5. *Anaphalis margaritacea* (Linnaeus) Gray.

COMPOSITAE. Sunflower Family

Achillea millefolium Linnaeus var. *californica* (Pollard) Jepson [*A. californica* Pollard]. Yarrow. Milfoil. Frequent, in open grassy or brushy areas. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; near Crocker Avenue, *Toschi 63:15*; Randolph Ravine, *P 2750*; Owl's Canyon, *K April 25, 1965*; Colma Canyon, *K August 5, 1963*; Romanzoffia Ravine, *K May 4, 1964*. Perennial with finely divided, fern-like leaves and white flower heads April to July. Our plant is part of a variable species widespread in the Northern Hemisphere.

Agoseris apargioides (Lessing) Greene. Coast Dandelion. Occasional, in grassland. Colma Canyon, *McC June 13, 1965*; near Nike Base, *McC, W May 23, 1965*; West Powerline, *McC, K September 2, 1963*. Flowers spring and summer.

Agoseris grandiflora (Nuttall) Greene. California Dandelion. Occasional, in grassland. East facing slope below Parking Lot, *McC June 9, 1963*; near Nike Base, *McC, W May 23, 1965*; Pig Ranch Ravine, *K May 15, 1965*; Crocker Hills, *K May 4, 1964*. Flowers spring and summer.

Anaphalis margaritacea (Linnaeus) Gray. Pearly Everlasting. Frequent, in grassland, sometimes forming sizeable colonies. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Flower Garden, *McC March 28, 1965*; near Nike Base, *McC, W May 23, 1965*; upper Radio Road, *W May 23, 1965*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; West Powerline, *McC, K September 2, 1963*. Flowers April to September. The pearly-white flower-heads are showy. Ornamental.

Anthemis cotula Linnaeus. Mayweed. Dog-Fennel. Chamomile. A showy weed, occasionally in fields and roadsides. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Guadalupe Road, *K August 5, 1963*; Crocker Avenue, *W July 7, 1965*; Brisbane Lagoon, *W June 19, 1965*; Old County Road, Brisbane, *W June 8, 1965*. Flowers spring through autumn. Native of Europe.

Artemisia californica Lessing. California Sagebrush. Frequent, on exposed slopes and ridges. Colma Canyon, *McC June 13, 1965*; near Olivet Cemetery, *W May 18, 1965*; slope immediately south of Parking Lot, *McC, Halde June 23, 1963*; West Powerline, *McC, K September 2, 1963*; upper Buckeye Canyon, *K July 14, 1963*; Point San Bruno, *McC, K September 11, 1964*; Owl's Canyon, seedlings in burned area, *McC March 28, 1965*. One of the shrubs of the coastal scrub, distinguished by its gray-green foliage and its aromatic sage-like odor. Flowers inconspicuous in summer and early autumn. Regenerates by seeds after fire.

Artemisia douglasiana Besser. California Mug-Wort. Wormwood. Occasional, on grassy or brushy areas, sometimes on disturbed ground. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; summit of mountain, *Raven 1796*; Cow Trough Ravine, *K October 7, 1963*; Brisbane Lagoon, *W August 14, 1965*. Flowers summer and early autumn.

Aster chilensis Nees. California Aster. Occasional, in brushy areas Cow Trough Ravine, *K October 7, 1963*; West Powerline, *McC, K September 2, 1963*; Point San Bruno, *K 747*. Perennial with flowers July to December. Sometimes used as an ornamental for its late season purplish flowers.

Aster exilis Elliott. Rare, marshy and often alkaline areas. Crocker Hills, *K 2037*. Annual with small flower heads in autumn.

Aster radulinus Gray. Rough-leaved Aster. Rare, in brushy areas. Quarry, *K July 14, 1963*; Buckeye Canyon, *K August 5, 1963*. Perennial with upper surface of leaves rough to the touch, flowers July to December.

Aster subspicatus Nees. Occasional, brushy areas. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Radio Road, *W May 23, 1965*; April Brook, *K June 20, 1965*; Dairy Ravine near radio towers, *K August 5, 1963*; Romanzoffia Ravine, *K May 4, 1964*; Quarry, *K July 14, 1963*. Flowers May to October. Sometimes used as an ornamental.

Baccharis pilularis DeCandolle var. *pilularis*. Dwarf Chaparral-Broom. Occasional, on exposed slopes and ridges. Lower Colma Canyon, *McC September 29, 1966*; Radio Road, *K August 5, 1963*. In the low-growing form of the species plants are prostrate to decumbent often forming mats scarcely more than 12 inches tall. Occasionally used as an ornamental.

Baccharis pilularis DeCandolle var. *consanguinea* (DeCandolle) Kuntze. Chaparral-Broom, Coyote Brush. Frequent, on open slopes and in ravines, in chaparral. West Powerline, *McC, K September 2, 1963*; Kamchatka Point, *K July 27, 1963*; Radio Road, *McC, K September 2, 1963*; San Bruno Point, *McC, K September 11, 1964*. The erect form of the species has plants 5 to 6 feet tall, occurring in the chaparral. Plants near the West Powerline in an area burned in 1964 produced stump sprouts the following spring. The common name, Fuzzy-Wuzzy, is sometimes given to these plants when in fruit because of the abundant dry pappus which blows with the slightest movement of air.

Baeria chrysostoma Fischer & Meyer subsp. *chrysostoma*. Goldfields. Rare, open slopes and ridges. Ravine $\frac{1}{2}$ mile east of 1314-foot summit of mountain, *P 2689*.

Baeria chrysostoma Fischer & Meyer subsp. **hirsutula** (Greene) Ferris. Goldfields. Frequent, exposed slopes and ridges. North of Randolph Drive and Hillside Boulevard, *P* 2727; West Powerline, *K* 708; Brisbane Powerline, *K* 964; Devil's Arroyo, *McC* March 28, 1965; top of mountain near radio station, *McC*, *Menzies* February 16, 1963; east facing slope near top of mountain, *McC* April 17, 1964. Both subspecies are colorful spring wildflowers which form dense golden-yellow colonies. Flowers March to May.

Bellis perennis Linnaeus. English Daisy. Weed, along roadside and damp fields. Crocker Avenue, *K* September 2, 1964. A common and attractive, but sometimes troublesome, weed of lawns, where it is in flower almost throughout the year. Native of Europe.

Blennosperma nanum (Hooker) Blake. Rare, in grassland. Owl's Canyon, *McC*, *K* April 25, 1965. A colorful spring wildflower with golden-yellow flowers in March and April.

Carduus pycnocephalus Linnaeus. Italian Thistle. Troublesome weed of disturbed places. Brisbane Lagoon, *W* June 19, 1965. Flowers May and June. Native of Mediterranean region.

Carduus tenuiflorus Curtis. Troublesome weed of disturbed places. Sierra Point, *W* April 27, 1965. Flowers May to July. Native of Europe.

Centaurea calcitrapa Linnaeus. Purple Star-Thistle. Troublesome weed of disturbed areas. Crocker Hills, *W* May 17, 1965; Sierra Point, *W* June 21, 1965; Brisbane Lagoon, *W* August 17, 1965; Cow Trough Ravine, *K* October 7, 1963. Flowers May to October. Native of Eurasia.

Centaurea melitensis Linnaeus. Napa Thistle. Tocalote. Troublesome weed of disturbed places. Quarry at end of School Street near Hillside Boulevard, *K* October 7, 1963; Colma Canyon, *K* May 30, 1964. Flowers May to October. Native of Europe.

Centaurea solstitialis Linnaeus. Barneby's Thistle. Troublesome weed of roadsides and disturbed areas. Brisbane Lagoon, *W* June 19, 1965. Flowers June to December. Native of Europe.

Chaetopappa alsinoides (Greene) Keck. Rare, in grassland. Above Harold Avenue, Brisbane, *McC*, *W* May 14, 1967. Slender inconspicuous annual with few yellowish flowers in head, April and May, ray flowers lacking.

Chrysanthemum coronarium Linnaeus. Crown Daisy. Garland Chrysanthemum. Attractive weed of roadsides and disturbed places. Base of Pig Ranch Ravine, *K* April 24, 1965; Crocker Avenue, *K* August 5, 1963; Sierra Point, *W* May 8, 1965. Showy yellow flowers, April to August. Native of Eurasia and Northern Africa.

Chrysopsis villosa (Pursh) Nuttall var. **bolanderi** (Gray) Gray. Golden Aster. Frequent, in grassland. Cow Trough Ravine, *K* October 7, 1963; eastern end of Ridge Road, *K* July 14, 1963. Flowers April to November.

Cichorium intybus Linnaeus. Chicory. Weed with blue flowers particularly showy in mornings, of roadsides and disturbed ground. Crocker Industrial Park, *W* October 16, 1966. Flowers in summer and autumn. The deep taproot is used as an adulterant or substitute for coffee. Native of Europe.

Cirsium brevistylum Cronquist. Indian Thistle. Occasional, on brushy slopes. Lower Colma Canyon, *McC*, *Halde*, *K* June 23, 1963; top of mountain near Parking Lot, *McC*, *Halde* June 23, 1963; Quarry, *K* July 14, 1963. Flowers April to July.

Cirsium quercetorum (Gray) Jepson. Brownie Thistle. Occasional, in grassland. North of Randolph Avenue at Hillside Boulevard, *P 2703*; Quarry, *K July 14, 1963*; near Nike Base, *K 588*. Low-growing plants with pale flowers, April to July.

Cirsium vulgare (Savi) Tenore. Bull Thistle. Weed, in disturbed areas. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Quarry, *K July 14, 1963*; Brisbane Lagoon, *W August 14, 1965*. A coarse thistle with upper surface of leaves rough to touch and purplish flowers June to October. Native to Eurasia.

Conyza bonariensis (Linnaeus) Cronquist. Weed, in waste ground and roadsides. Crocker Hills in a marshy area between Geneva Avenue and Guadalupe Parkway, *K 2042*. Flowers June to September, flower heads larger than those of *C. canadensis*. Native of South America.

Conyza canadensis (Linnaeus) Cronquist. Horseweed. Weed of waste ground. Hillside Boulevard near Serbian Cemetery, *K 390*; Radio Road, *K August 5, 1963*; Colma Canyon, *K May 30, 1964*. Tall weedy annual with inconspicuous flowers July to October. Widely distributed in North and South America.

Cotula australis (Sieber) J. D. Hooker. Weed, in disturbed places. Ridge Road, $\frac{1}{4}$ mile east of Parking Lot, *K 876*; Ridge Road near West Powerline, *K 957*; Crystal Cave Canyon, *K 1253*. Tiny inconspicuous but troublesome annual weed, often forming colonies, common in gardens. Flowers March to October. Native of Australia.

Cotula coronopifolia Linnaeus. Brass-Buttons. Weed of moist places, sometimes in salt flats. Point San Bruno, *McC, K September 11, 1964*; Sierra Point, *W May 8, 1965*; ravine south of Crocker Avenue, *P 2658*; near Crocker Avenue, *Toschi 63:33*. Strong scented perennial with yellow flowers in terminal heads, March to October. Native of South Africa.

Erechtites arguta (A. Richard) DeCandolle [*Senecio glomeratus* Desfontaines ex Poirét]. New Zealand Fireweed. Weed of disturbed places. Crocker Industrial Park, *W June 19, 1965*; near Nike Base, *McC, W May 23, 1965*. Coarse annual with pale flowers, June to August. Native of New Zealand and Australia.

Erechtites prenanthoides DeCandolle [*Senecio minimus* Poirét]. Australian Fireweed. Weed of disturbed places. Crocker Hills near Cow Palace, *W May 17, 1965*; Bitter Cherry Ravine, *K 1109*. Coarse annual with lance-shaped, toothed leaves which distinguish it from *E. arguta* in which leaves are deeply divided. Pale flowers, July to September. Native of Australia and New Zealand.

Erigeron foliosus Nuttall. Rare, in grassland. Buckeye Canyon, *W July 8, 1965*. Flowers June and July.

Erigeron glaucus Ker-Gawler. Seaside Daisy. Frequent, on wind-swept slopes and ridges. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; West Powerline, *McC, K September 2, 1963*; Trillium Gulch, *K 1016*; Pig Ranch Ravine, *W May 12, 1965*. Attractive low-growing perennial with somewhat thickish smooth leaves, and showy lavender flowers, March to August. Ornamental.

Erigeron philadelphicus Linnaeus. Philadelphia Daisy. Rare, in wet ground. April Brook, where creek joins Colma Canyon, *W June 16, 1965*; Radio Road, *W May 23, 1965*. Slender perennial, attractive flower heads with over 150 slender lavender ray flowers, April to June. Ornamental.

PLATE 1. Upper. *Erigeron glaucus* Ker-Gawler.

Lower. *Sidalcea malvaeflora* (DeCandolle) Gray ex Bentham.

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Eriophyllum confertiflorum (DeCandolle) Gray. Yellow Yarrow. Occasional, on brushy slopes. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; Quarry, *K July 14, 1963*; canyon southwest of radio towers, *W May 12, 1965*; above Olivet Cemetery, *McC June 13, 1965*. Shrub, usually 1-foot tall, with narrowly linear leaf divisions and many yellow flower heads in showy clusters, May to November. Ornamental, it stays within bounds when planted and its gray-green finely divided foliage offers a pleasing contrast with its golden-yellow flower heads.

Eriophyllum staechadifolium Lagasca. Lizard-Tail. Occasional, in brushland on western part of mountain. Quarry, *K July 14, 1963*; Radio Road, *McC, K September 2, 1963*; slope below Parking Lot, *McC June 9, 1963*. Shrub usually 2 feet or more tall, with lanceolate leaf divisions and many yellow flower heads in clusters, May to November and often during remainder of year. Distinguished from preceding species by its leaves which have broader divisions and a more coarse appearance than those of *E. confertiflorum*.

Filago californica Nuttall. Occasional, in grassland and brushy areas. A ridge above Brisbane, \pm 800-foot elevation, *Raven 1803*; South Powerline, *McC March 14, 1965*. Flowers March and April.

Filago gallica (Linnaeus) Linnaeus. Occasional, in grassland, and disturbed areas. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; slope below Parking Lot, *McC June 9, 1963*. Weed of gardens and other disturbed areas. Native of Europe.

Franseria chamissonis Lessing subsp. **bipinnatisecta** (Lessing) Wiggins & Stockwell. Beach-Bur. Rare, beaches and salt flats. San Bruno Point, *K September 2, 1964*, Flowers June to October.

Gnaphalium beneolens A. Davidson. Everlasting. Cudweed. Rare, brushy slopes. Brisbane Ravine, *K August 5, 1963*. A perennial, flowers July to November.

Gnaphalium californicum DeCandolle. Green Everlasting. California Cudweed. Frequent, on dry brushy slopes and ridges. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; slopes southeast of 1314-foot summit, *P 2671*; West Powerline, *McC, K September 2, 1963*; Radio Road, *K August 5, 1963*; Sierra Point, *W May 8, 1965*. Strongly scented biennial, leaves green not gray, flowers May to August.

Gnaphalium chilense Sprengel. Everlasting. Cudweed. Frequent, brushy areas at margin of chaparral. Colma Canyon, *K May 30, 1964*; Brisbane Lagoon, *W June 19, 1965*; Pig Ranch Ravine, *W May 12, 1965*; Crystal Cave Canyon, *K June 20, 1965*; Quarry, *K July 14, 1963*; Radio Road, *K August 5, 1963*. Gray woolly annual or biennial, flowers throughout the year.

Gnaphalium luteo-album Linnaeus. Everlasting. Cudweed. Weed of disturbed areas. Crocker Hills, *K 2045*; Radio Road, *K August 5, 1963*; Colma Canyon, *McC, W June 13, 1965*; Guadalupe Valley, *P 2763*; in coastal scrub, *Thomas 10064*. Gray woolly annual or biennial, flowers throughout year. Native of Europe.

Gnaphalium purpureum Linnaeus. Purple Cudweed. Rare, dry disturbed areas. Slope below Parking Lot, *McC June 9, 1963*; Pig Ranch Ravine, *W May 12, 1965*. White woolly annual or biennial, flowers April to June.

Gnaphalium ramosissimum Nuttall. Pink Everlasting. Rare, open or brushy slopes. Radio Road, *McC, K September 2, 1963*; Horseshoe Ridge, *K August 5, 1963*; Great Meadow

adjacent to upper Colma Canyon, *W August 16, 1965*. Sweet-scented, green-leaved biennial with pink flowers, June to October. The most attractive of all of the Everlastings.

Grindelia camporum Greene. Gum-Weed. Occasional, on dry open slopes and ridges. North city limits of South San Francisco, *McC, K September 11, 1964*; Brisbane Lagoon, *W August 14, 1965*; Radio Road, *McC, K September 2, 1963*; Quarry, *K July 14, 1963*; Buckeye Canyon, *K July 14, 1963*; Ridge Road, *W July 8, 1965*. Subshrub, leaves resinous, yellow flower heads, June to December.

Grindelia hirsutula Hooker & Arnott. Occasional, on dry open or brushy slopes. Ravine north of Randolph Drive at Hillside Boulevard, *P 2736*; Sierra Point, *W April 27, 1965*; slope southeast of 1314-foot summit, *P 2666*; Quarry, *K June 24, 1963*; near radio stations, *McC, Menzies February 16, 1963*. Flowers April to June.

Grindelia humilis Hooker & Arnott. Rare, in salt flats. Brisbane Lagoon, *W June 19, 1965*; near Bayshore Highway north of South San Francisco, *K November 8, 1963*. Flowers throughout year. Sometimes used as an ornamental; fast growing and large yellow flower heads are showy.

Grindelia maritima (Greene) Steyermark. Rare, in association with coastal scrub, *J. H. Thomas 9709*. Perennial with yellow flowers August and September.

Haplopappus ericoides (Lessing) Hooker & Arnott. Mock-Heather. Rare, in sandy soil on brushy slope. Lower Colma Canyon, *McC September 29, 1966*. Low shrub with heather-like leaves and yellow flower heads September to November.

Helenium puberulum DeCandolle. Sneezeweed. Rosilla. Occasional, moist places or along creeks. Wax Myrtle Ravine, *K August 5, 1963*; April Brook, *K, J. Roof August 4, 1963*; Great Meadow, *W July 7, 1965*. Biennial or shortlived perennial, yellow flower heads with dome-shaped disk surrounded by short, reflexed rays, April to November.

Helianthella castanea Greene. Rare, in grassland. Sierra Point, *W April 27, 1965*. Perennial herb with large leaves and sunflower-like flower heads, April and May. Superficially resembles *Wyethia*. Endemic to San Francisco Bay region.

Hemizonia corymbosa (DeCandolle) Torrey & Gray. Tarweed. Occasional, in grassland. Colma Canyon, *McC June 13, 1965*; Pig Ranch Ravine, *K May 1965*; abandoned quarry at end of School Street near Hillside Boulevard, *K October 7, 1963*; Sierra Point, *W April 27, 1965*. Annual with lower pinnatifid leaves in spring, leaves becoming entire on older plants, pale yellow flower heads, May to November.

Hemizonia pungens (Hooker & Arnott) Torrey & Gray subsp. *maritima* (Greene) Keck. Spikeweed. Rare. Crocker Avenue, *McC September 24, 1967*. Erect stiffly branched annual to 12 inches tall, yellow flower heads, late summer to early autumn.

Heterotheca grandiflora Nuttall. Telegraph Weed. Rare, in disturbed places. Crocker Industrial Park, *W October 16, 1966*. Tall weedy annual or biennial with grayish foliage and yellow flower heads March to October. Native of interior central and southern California, introduced as a weed in our area.

Hypochaeris glabra Linnaeus. Smooth Cat's-Ear. Weed, in disturbed places. Colma Canyon, *McC June 13, 1965*; north of Randolph Drive at Hillside Boulevard, *P 2721*. Annual weed with basal leaves and yellow flower heads, February to August. Native of Eurasia and North Africa.

Hypochaeris radicata Linnaeus. Hairy Cat's-Ear. Weed of disturbed places and grasslands. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; Ridge Road at eastern end, *K July 14, 1963*; near Nike Station, *McC May 25, 1965*. Perennial with taproot, basal leaves, and yellow flower heads, March to September. Native of Eurasia and North Africa.

Jaumea carnosa (Lessing) Gray. Rare, in salt flat at edge of San Francisco Bay. Point San Bruno, *McC, K September 2, 1964*. Fleshy perennial with yellow flowers, June to November.

Lactuca saligna Linnaeus. Willow-Lettuce. Weed of disturbed ground. Cow Trough Ravine, *K October 7, 1963*. Native of Eurasia.

Lactuca serriola Linnaeus. Prickly Lettuce. Weed of disturbed ground. Pig Ranch Ravine, *W May 11, 1965*. Prickly-leaved annual, flowers May to November. Native of Eurasia and North Africa.

Lactuca virosa Linnaeus. Wild Lettuce. Weed of disturbed ground. Ridge Road near West Powerline, *K August 5, 1963*. Tall biennial to 6 to 8 feet, with stems hollow at least below, flowers August and September. Native of Eurasia and North Africa.

Lagophylla ramosissima Nuttall. Hareleaf. Rare, known from a single collection in "San Bruno Hills," *J. McMurphy June 13, 1909*.

Layia chrysanthemoides (DeCandolle) Gray. Rare, known from a single collection in "San Bruno Hills," *J. McMurphy June 13, 1909*.

Layia gaillardoides (Hooker & Arnott) DeCandolle. Rare, in coastal scrub, *J. H. Thomas 9307*. Annual with showy golden-yellow flowers, April to June.

Layia hieracioides (DeCandolle) Hooker & Arnott. Frequent, in chaparral. Colma Canyon, *K August 5, 1963*; Radio Road, *McC, K September 2, 1963*; Dairy Ravine, *K August 5, 1963*; Quarry, *K July 14, 1963*; Devil's Arroyo, seedlings in area burned over in previous autumn, *McC March 28, 1965*. Pungent, hairy annual, with lobed leaves and relatively small flowers, April to August.

Layia platyglossa (Fischer & Meyer) Gray subsp. *campestris* Keck. Tidy-Tips. Rare, in grassland and chaparral. Colma Canyon, *Raven 1780*; Ridge Road at West Powerline, *K 636*. Hairy annual with pinnately lobed leaves and showy pale yellow flower heads, March to June.

Madia capitata Nuttall. Tarweed. Occasional, in grassland, and disturbed areas. Colma Canyon, *K 607*; April Brook, *K May 15, 1965*; Pig Ranch Ravine, *W May 11, 1965*; Radio Road, *K August 5, 1963*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; summit of mountain, *Raven 1794*. Pungent, glandular-hairy annual with flower heads sessile or shortly stalked, May to September.

Madia exigua (Smith) Gray. Small Tarweed. Rare, in grassland. Ridge Road at West Powerline, *K 625*. Low growing, branched annual, flowers May and June. The small flower heads with only one or two disk-flowers per head and the slender peduncles distinguish this species.

Madia gracilis (Smith) Keck. Slender Tarweed. Rare, in grassland. Above Olivet Cemetery, *McC June 13, 1965*. Glandular-viscid annual, flowers May to September.

Madia sativa Molina. Coastal Tarweed. Frequent, in grassland, roadsides, and disturbed areas. Becoming weedy. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Radio Road, *McC, K September 2, 1963*; West Powerline, *McC, K September 2, 1963*; Quarry, *K July 14, 1963*; Devil's Arroyo, *K 1094*. Stout, pungent, glandular-hairy annual with flower heads clustered in upper leaves, June to November.

Matricaria matricarioides (Lessing) Porter. Pineapple-Weed. Weed of disturbed areas, often in dry hard-packed soil. Crocker Hills, *K May 4, 1964*; Sierra Point, *W May 8, 1965*; Crocker Industrial Park, *W June 19, 1965*. Aromatic annual with finely pinnatifid leaves and conical yellow flower heads, March to June.

Micropus californicus Fischer & Meyer. Slender Cottonweed. Rare, margin of chaparral. Canyon southwest of the National Broadcasting Company radio tower, *W May 11, 1965*. White woolly annual, inconspicuous flowers, April to June.

Microseris douglasii (DeCandolle) Schultz-Bipontinus subsp. **douglasii**. Rare, in grassland. *Thomas 9259*.

Microseris douglasii (DeCandolle) Schultz-Bipontinus subsp. **tenella** (Gray) Chambers. Rare, in grassland. Buckeye Canyon, *W April 27, 1965*. Both subspecies are annuals lacking a stem with leaves basal, yellowish to pale apricot-colored flowers on a stalk, April and May.

Picris echioides Linnaeus. Bristly Ox-Tongue. Weed of disturbed places. Quarry, *K June 24, 1963*; Colma Canyon, *K August 5, 1963*; Brisbane Lagoon, *W June 19, 1965*. Rough, bristly annual or biennial, yellow flowers, April to December. Native of Mediterranean region.

Psilocarphus tenellus Nuttall. Slender Woolly-Heads. Occasional, in dry bare, often hard packed, ground, forms colonies and mats, sometimes becomes weedy. Guadalupe Road, *McC April 11, 1965*; Quarry, *K June 24, 1963*; Ridge Road, *W June 19, 1965*. Low-growing grayish annual, flowers March to May.

Rafinesquia californica Nuttall. California Chicory. Occasional, on grassy or brushy areas. *Thomas 9294*.

Senecio aronicoides DeCandolle. Butterweed. Frequent, in grassland and border of chaparral. Colma Canyon, *K March 15, 1964*; east slope of mountain below radio station. *Toschi 63:68*; top of mountain, *Raven 1375*; 300 yards east of Parking Lot on area burned in autumn 1964, *K 869*; Romanzoffia Ravine, *K May 4, 1964*; ravine $\frac{1}{2}$ mile east of 1314-foot summit, *P 2690*; South Powerline in area burned in autumn 1964, *McC March 14, 1965*. Tall coarse perennial with yellow flower heads, April to June.

Senecio cruentus (L'Heritier) DeCandolle. Florist's Cineraria. Garden Cineraria. Escapes from cultivation in moist, shaded areas. Top of mountain near KRON radio station, *W June 20, 1965*. Perennial with large purple ray flowers, summer. Native of Canary Islands.

Senecio elegans Linnaeus. Purple Ragwort. Escape from cultivation. Colma Canyon, *W June 16, 1965*. Annual with lavender ray flowers, May and June. Native of South Africa.

Senecio mikanioides Otto. German Ivy. Weed of moist areas along roadsides. Crocker Avenue, *McC, K January 12, 1964*. Evergreen perennial twining on other plants, bright yellow flower heads, winter and spring. Native of South Africa.

Senecio sylvaticus Linnaeus. Weed in brushy areas. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; Ridge Road about 100 yards east of Parking Lot, *K May 19, 1964*. Coarse annual weed with pale flower heads, April to June. Native of Europe.

Senecio vulgaris Linnaeus. Common Groundsel. Weed of disturbed areas. East facing slope below Parking Lot, *McC April 17, 1964*; South Powerline, *McC March 14, 1965*. Annual with pale flower heads, spring-summer. Black-tipped involucre bracts distinguish it from *S. sylvaticus*. Native of Europe.

Silybum marianum (Linnaeus) Gaertner. Milk-Thistle. Weed of disturbed places and roadsides. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Crocker Hills, *K May 4, 1964*. Coarse annual or biennial with spiny mottled leaves and purple flower heads. Native of Mediterranean region.

Solidago californica Nuttall. California Golden-Rod. Occasional, dry open areas. West Powerline, *McC, K September 2, 1963*; Cow Trough Ravine, *K October 7, 1963*; April Brook, *W August 16, 1965*. Perennial with creeping rhizome and hairy leaves somewhat rough to touch above, flowers July to November.

Solidago canadensis Linnaeus subsp. *elongata* (Nuttall) Keck. Meadow Goldenrod. Occasional, on brushy areas. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; Colma Canyon, *K March 15, 1964*. Differs from *S. californica* in its glabrous or only slightly hairy leaves, flowers August to November.

Solidago spathulata DeCandolle. Dune Goldenrod. Frequent, on brushy areas. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; top of mountain near radio towers, *McC, Menzies February 16, 1963*; West Powerline, *McC September 2, 1963*; lower Colma Canyon, *McC September 29, 1966*; Crocker Hills, *K August 5, 1963*. Differs from two preceding goldenrods in the shining, more or less glutinous inflorescence, flowers August to October.

Soliva sessilis Ruiz & Pavon. Weed of roadsides and other disturbed areas. West Powerline, *K April 13, 1964*; Crocker Hills near Cow Palace, *W May 17, 1965*; Randolph Avenue, *K May 11, 1967*. Small depressed annual weed, flowers January to June. Native of Chile.

Sonchus asper (Linnaeus) Hill. Prickly Sow-Thistle. Weed of roadsides and other disturbed areas. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; lower Colma Canyon, *McC, Halde, K June 23, 1963*; Radio Road, *K August 5, 1963*. Weedy annual, flowers March to July. Native of Eurasia and North Africa.

Sonchus oleraceus Linnaeus. Sow Thistle. Weed of roadsides and other disturbed areas. Brisbane Lagoon, *W June 19, 1965*; north of Randolph Drive at Hillside Boulevard, *P 2724*; Horseshoe Ridge, *K August 5, 1963*. Weedy annual, flowers March to September. Native of Europe.

Stephanomeria virgata Bentham. Rare, open rocky slope. South side of Ridge Road, about 200 yards south of Parking Lot, *McC, K August 1, 1967*. Stiff annual with almost leafless stems and inconspicuous pink or white flowers in summer.

Tanacetum camphoratum Lessing. Dune Tansy. Rare, known from only one locality on the mountain. Distribution restricted to the San Francisco area. Radio Road, *K August 5, 1963*. Herbaceous perennial with gray fern-like leaves and showy yellow flowers, June to October. Ornamental.

Taraxacum laevigatum (Willdenow) DeCandolle. Red-Seeded Dandelion. Weed of disturbed areas. Flower garden adjacent to April Brook, *McC March 28, 1965*; West Powerline, *McC April 25, 1965*. Flowers March to July. Native of Eurasia.

Tragopogon porrifolius Linnaeus. Oyster-Root. Salsify. Weed of disturbed areas. Crocker Industrial Park, *W June 19, 1965*. Perennial with long taproot and purple flowers, March to October. Native of Mediterranean region. Sometimes grown for its edible root called vegetable-oyster.

Wyethia angustifolia (DeCandolle) Nuttall. Mule-Ears. Occasional, in grassland. Crocker Hills, *K May 4, 1964*; Point San Bruno, *K April 24, 1965*; Sierra Point, *W April 27, 1965*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*; Glen Park Canyon, *McC April 16, 1967*. Perennial herb with long narrow leaves and showy sunflower-like flower heads April and May. Similar in appearance to *Helianthella castanea* from which it differs in technical characters of flower and fruit.

Xanthium spinosum Linnaeus. Spiny Clotbur. Spanish Thistle. Weed of disturbed places. Crocker Industrial Park, *W June 19, 1965*. Coarse spiny annual, inconspicuous flowers, April to November. Nativity doubtful, has been reported from both North and South America, as well as from Europe. Because of the aggressive weedy nature of this plant it is difficult to determine where it may have originated.

CONVOLVULACEAE. Convolvulus Family

Convolvulus arvensis Linnaeus. Field Bindweed. Orchard Morning-Glory. Deep-rooted, troublesome weed of fields and waste places. Lower Colma Canyon, *W June 16, 1965*; intersection of Radio Road with Guadalupe Parkway, *K August 5, 1963*; Quarry, *W June 8, 1965*. Flowers May to October. Introduced from Europe.

Convolvulus occidentalis Gray. Western Morning-Glory. Occasional, on brushy slopes, often scrambling over other plants. Colma Canyon, *K May 4, 1964*; above Olivet Cemetery, *McC June 13, 1965*; Randolph Drive at Hillside Boulevard, *P 2729*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; upper Buckeye Canyon, *K July 14, 1963*. Flowers April to July. May be distinguished from preceding by its larger flowers, about $1\frac{1}{4}$ to $1\frac{1}{2}$ inches long, whereas, flowers in *C. arvensis* are about $\frac{3}{4}$ inch long.

Convolvulus subcaulis (Hooker & Arnott) Greene. Occasional, in grassland. Crocker Hills near Cow Palace, *W May 17, 1965*; Colma Canyon, *W June 16, 1965*; ravine east of Quarry, *W June 19, 1965*; Wax Myrtle Ravine, *K August 5, 1963*; north facing slope south of Guadalupe Parkway close to junction with Radio Road, *McC, W June 11, 1967*. Flowers April to June. Differs from two preceding morning-glories by its short stem and its larger flowers, from $1\frac{1}{2}$ to 2 inches long.

Dichondra donelliana Tharp & Johnston. Rare, known only from a slope above Olivet Cemetery. Above Olivet Cemetery, *W May 18, 1965*. The gray-green foliage of this species distinguishes it from *D. micrantha* Urban (usually referred to as *D. repens* Forster) which is cultivated as a ground cover and occasionally escapes to become naturalized. *Dichondra donelliana* is known from scattered localities in southern Oregon, northern and central California, and Santa Cruz Island off the coast of southern California. *Dichondra*, a poorly understood genus of about 14 species mostly in North and South America, New Zealand, and Australia, is best known through *D. micrantha* (sometimes called *D. repens*) the much used groundcover. *D. donelliana* has until recently been known as *D. repens*, a name which applies to a plant in New Zealand and Australia. Its identity was established in 1961 when it was described as a new species and named for the South American botanist, Professor Carlos O'Donnell.

CORNACEAE. Dogwood Family

Cornus californica C. A. Meyer. Creek Dogwood. Western Red Dogwood. Rare, in moist canyons and ravines, sometimes forming thickets. Quarry, *K July 14, 1963*; lower Colma Canyon along creek, *McC, Halde, K June 23, 1963*. However, at the present time (1967) it may no longer exist at these localities. Clusters of white flowers, April to June. Leaves turn red in autumn before falling and the slender bare reddish-brown branches are showy in spring before the new leaves appear. Ornamental.

CRASSULACEAE. Stone Crop Family

Dudleya cymosa (Lemaire) Britton & Rose. Bluff Lettuce. Scattered on rocky slopes and ledges. Flowers April to July.

Dudleya farinosa (Lindley) Britton & Rose. Scattered on rocky slopes and ledges. East facing slope below Parking Lot, *McC, Halde June 23, 1963*. Flowers July and August. Distinguished from preceding species by the leaves being farinose or white-mealy. Both species of *Dudleya* are used as ornamental succulent plants.

Sedum spathulifolium Hooker. Stone Crop. Scattered on rocky and grassy slopes and ledges. Ravine east of Quarry, *W July 8, 1965*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*. Flowers April to July. Useful as an ornamental succulent plant. *Sedum* may be distinguished from *Dudleya* when in flower by its spreading and separate petals. In *Dudleya* the petals are united to form a short tubular corolla.

Tillaea erecta Hooker & Arnott. Pigmyweed. Occasional, in open places in grassland and edge of chaparral, often in pure colonies on exposed ground. Slope above Brisbane, *Raven 1371*; Crocker Hills near Guadalupe Road, *McC April 11, 1965*; on ridge near West Powerline, *K 993*. A tiny inconspicuous annual, only an inch or two tall. Close examination with a hand-lens, however, reveals its minute but fleshy opposite leaves and tiny, sedum-like flowers April and May.

CRUCIFERAE. Mustard Family

Arabis blepharophylla Hooker & Arnott. Coast Rock Cress. Frequent, grassy slopes and rocky outcroppings. Near Crocker Avenue, *P 2654*; Cable Ravine, *McC March 14, 1965*; Powerlines, *K 967*; Owl's Canyon, *K April 25, 1965*; Colma Canyon, *K 1226*; slope southeast of 1314 foot summit, *P 2672*; slope above Brisbane, *Raven 1378*. Early spring-flowering perennial with attractive rose-purple flowers, March to May. Ornamental.

Arabis glabra (Linnaeus) Bernhardt. Tower Mustard. Occasional, grassy and brushy slopes. Colma Canyon, *K 1217*; Flower Garden near April Brook, *McC March 28, 1965*; West Powerline, *Menzies March 14, 1965*; summit of mountain, *Raven 1799*; Quarry, *K July 14, 1963*; South Powerline Ridge, *Menzies March 14, 1965*; near radio station, *McC, Menzies February 16, 1963*. Weedy in appearance with whitish to yellow flowers, February to June.

Barbarea orthoceras Ledebour. American Winter Cress. Occasional, open or brushy areas. Manzanita Dike, *K 933*; meadow between April Brook and Radio Road, *McC March 28, 1965*; Eucalyptus grove on Radio Road, *K 861*; east facing slope below radio station, *Toschi 63:63*; Sierra Point, *W April 27, 1965*. Pale yellow flowers, March to July.

Barbarea verna (Miller) Ascherson. Early Winter Cress. Weed, in disturbed areas. Colma Canyon, *K May 30, 1964*; near Crocker Avenue, *P 2651*; east facing slope below summit, *McC April 17, 1964*; ravine $\frac{1}{2}$ mile east of summit, *P 2697*. Yellow flowers, March to July. Native of Europe.

Brassica campestris Linnaeus. Field Mustard. Weed, disturbed areas. Near Crocker Avenue, *P 2662*; Guadalupe Valley, *P 2766*; Colma Canyon, *K 1236*; Brisbane Lagoon, *W June 19, 1965*. The bright yellow flowers are colorful in early spring, February to July. Native of Europe.

Brassica geniculata (Desfontaines) J. Ball. Mediterranean Mustard. Summer Mustard. Weed, in disturbed areas. Radio Road, *K August 5, 1963*; Quarry, *K July 14, 1963*; Guadalupe Valley, *P 2770*; Colma Canyon, *McC, Halde, K June 23, 1963*; Romanzoffia Ravine, *K May 4, 1964*; base of Owl's Canyon, *W June 7, 1965*; Point San Bruno, *K, McC September 11, 1964*. Yellow flowers mostly in summer, May to September. Native of Mediterranean region.

Brassica kaber (DeCandolle) L. C. Wheeler. Charlock. Weed along roadsides and in waste ground. Point San Bruno, *K April 24, 1964*. Flowers March to October. Native of Europe.

Brassica oleracea Linnaeus. Cabbage. Escape from cultivation. Brisbane Lagoon, *W June 19, 1965*. Sometimes persisting in maritime situations, flowers in spring and summer. Native of western and southern Europe.

Cakile maritima Scopoli. Sea-Rocket. Occasional, as a weed on sand dunes and beaches. Point San Bruno, *McC, K September 11, 1964*. Flowers lavender to purplish, March to September. Native of Europe.

Capsella bursa-pastoris (Linnaeus) Medicus. Shepherd's Purse. Weed of disturbed areas and on open grassy slopes. West Powerline, *K 734*. Small whitish flowers throughout year. Native of Europe.

Cardamine oligosperma Nuttall. Bitter Cress. Occasional, in grassland and disturbed areas, sometimes in areas previously burned. Colma Canyon, *K May 30, 1964*; ravine $\frac{1}{2}$ mile east of summit, *P 2686*; Romanzoffia Ravine, *K March 14, 1965*; Trillium Gulch, *K 1018*. Annual with small white flowers and seed pods which open explosively, often becoming weedy, flowers February to June.

Cardaria draba (Linnaeus) Desvaux. Hoary Cress. Weed, in disturbed ground. Crocker Hills near old Bayshore Highway, *W May 7, 1967*. Erect perennial with numerous tiny white flowers in terminal panicles, March to December. Native of Europe.

Coronopus didymus (Linnaeus) J. E. Smith. Wart-Cress. Weed of waste and cultivated ground and along roadsides, sometimes in hard packed soil. Colma Canyon, *K May 30, 1964*; Crocker Hills near Cow Palace, *W May 17, 1965*; Guadalupe Road, *McC April 11, 1965*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; Ridge Road east of Parking Lot, *K 699*. Much branched, strong-smelling annual with tiny flowers, March to November. Native of Europe.

Dentaria californica Nuttall var. *integrifolia* (Nuttall) Detling. Toothwort. Rain-Bells. Milk-Maids. Occasional, open grassy or brushy slopes. Slope above Brisbane, *Raven 1380*; Kamchatka Point, *K January 8, 1964*; Colma Canyon, *K March 15, 1964*; Radio



Road, *McC*, *V. Ryder February 16, 1964*; near radio station close to summit, *McC*, *Menzies February 16, 1963*; Cable Ravine, *McC March 14, 1965*; Trillium Gulch, *McC March 28, 1965*; ravine $\frac{1}{2}$ mile east of 1314-foot summit, *P 2698*. Perennial with an underground thickened stem or rhizome from which in late winter arise 3-foliolate leaves. The slender erect stems have 3 to 5-foliolate leaves and pretty white to pink flowers, January to May.

Erysimum franciscanum Rossbach. Franciscan Wallflower. Occasional, open, rocky, or grassy slopes. Quarry, *K July 14, 1963*, and *W July 8, 1965*; Buckeye Canyon, *K July 14, 1963*; below top of mountain, *McC June 9, 1963*; lower Colma Canyon, *McC*, *Halde, K June 23, 1963*; Randolph Avenue at Hillside Boulevard, *P 2735*; South Powerline, *McC March 14, 1965*. Attractive showy spring wildflower, a biennial or short-lived perennial, leggy in habit, with terminal clusters of pale yellow or cream-white flowers, March to May. Ornamental.

Lepidium nitidum Nuttall. Shining Pepper-Grass. Occasional, open rocky areas and grassland. Side spur of San Bruno Mountain west of Brisbane, *Raven 1367*; Romanzoffia Ravine, *K March 14, 1965*; West Powerline, *K*, *McC March 14, 1965*; Crocker Avenue, *K 1201*; Colma Canyon, *K 1248*; slope below top of mountain near radio station, *McC*, *Menzies February 16, 1963*; Randolph Avenue, South San Francisco, *K May 16, 1967*. Erect annual with tiny whitish flowers January to May, and small ovate fruits having a peppery taste.

Lepidium pinnatifidum Ledebour. Russian Pepper-Grass. Weed of disturbed ground. Brisbane Lagoon, *W June 19, 1965*; Randolph Avenue, South San Francisco, *K May 16, 1967*. Annual or biennial with tiny flowers in spring. Native of southern Russia.

Lobularia maritima (Linnaeus) Desvaux [*Alyssum maritimum* (Linnaeus) Lamarck. *Koniga maritima* (Linnaeus) R. Brown]. Sweet Alyssum. Weedy escape from cultivation in disturbed ground. Crocker Avenue, *K August 5, 1963*; Reservoir Hill, *McC March 14, 1965*. Low much branched perennial with often a profusion of small white flowers throughout the year. Native of Europe.

Lunaria annua Linnaeus. Moonwort. Honesty. Money-Plant. Weedy escape from cultivation in moist shaded areas. Radio Road, *Thomas 10632*. Erect branched annual or biennial with attractive purple flowers, March to June, followed by rounded to oval papery fruits resembling a silver coin and used in dry arrangements. Native of Europe.

Raphanus sativus Linnaeus. Wild Radish. Weed of disturbed areas. Guadalupe Road, *K August 5, 1963*; ravine south of Crocker Avenue, *P 2663*; ridge above Brisbane, *McC*, *K September 2, 1963*. Tall branched annual or biennial with showy clusters of flowers in varying shades of white, yellowish, to pale and darker lavender, February to May. Native of Europe. The edible radishes are selected forms of the species.

Rorippa nasturtium-aquaticum (Linnaeus) Schinz & Thellung [*Nasturtium officinale* R. Brown]. Water Cress. Occasional, in shallow water or margins of streams. Cow Trough Ravine, *K October 7, 1963*; Crocker Avenue, *K August 5, 1963*; Quarry, *K July 14, 1963*; lower Colma Canyon, *McC*, *Halde, K June 23, 1963*; Devil's Arroyo, *McC March 28, 1965*; Sierra Point, *W April 27, 1965*. Leafy aquatic perennial with white flowers March to November. Native of the Old World. Cultivated for its edible leaves.

Sisymbrium officinale (Linnaeus) Scopoli. Hedge Mustard. Weed of waste ground. Crocker Avenue, *K August 5, 1963*; Colma Canyon, *K May 4, 1964*; Romanzoffia Ravine, *K May 4, 1964*; Crocker Hills, *K May 4, 1964*. Coarse stiffly branched annual with clusters of small yellowish flowers, February to August, and elongate fruits closely appressed to stem. Native of Europe.



FIGURE 6. *Marah fabaceus* (Naudin) Greene.

Sisymbrium orientale Linnaeus. Weed of waste ground. Guadalupe Road, *K April 11, 1965*. Coarse, branched annual or biennial, distinguished from *Sisymbrium officinale* by its spreading fruits. Native of Europe.

Thelypodium lasiophyllum (Hooker & Arnott) Greene var. *inalienum* Robinson. Occasional, open and brushy slopes in undisturbed areas. Crocker Hills, *K May 4, 1964*; South Powerline, *Menzies March 14, 1965*; Devil's Arroyo, *K 1090*, and *K 1103*; Guadalupe Road, *McC April 11, 1965*. Tall, erect, annual which in this form of the species has the slender fruits spreading away from the stem.

Thysanocarpus curvipes Hooker. Fringe-Pod. Rare, in grassland. Owl's Canyon, *K May 1, 1967*. Slender, branched annual with tiny whitish flowers, March to May, and a small rounded fruit sometimes with perforate margin.

CUCURBITACEAE. Gourd Family

Marah fabaceus (Naudin) Greene. Manroot. Wild Cucumber. Occasional, in brushland climbing on shrubs or trailing over the ground. Slope above Crocker Avenue, *Toschi 63:27*; Colma Canyon, *K May 30, 1964*; lower Colma Canyon, *McC, Halde, K June 9, 1963*; above the Quarry, *K July 14, 1963*; ravine east of West Powerline, *McC March 28, 1965*; slope below summit of mountain, *McC June 9, 1963*. Flowers cream-white, corolla more or less rotate, that is having a tube and spreading lobes, February to May, and mature fruits with many stiff spines. This species and the following, *Marah oregonus*, are similar in appearance. Both have herbaceous stems arising annually from a large perennial tuber, hence the common name of Manroot. They may be distinguished by the shape of their corollas and the number and stiffness of the spines on the fruits.



FIGURE 7. *Arctostaphylos imbricata* Eastwood.

Marah oreganus (Torrey & Gray) T. J. Howell. Manroot. Wild Cucumber. Occasional, in brushland climbing on shrubs or trailing over the ground. Dairy Ravine, *K August 5, 1963*; west facing slope below summit of mountain, *McC April 17, 1964*; slopes southwest of Brisbane, *P 2760*; Devil's Arroyo, *K 1060*. Flowers whitish, corollas more or less campanulate, March to May, and mature fruits with few weak spines.

DIPSACACEAE. Teasel Family

Dipsacus fullonum Linnaeus [*D. sativus* Honckeny]. Fuller's Teasel. Weed along roadsides and in disturbed areas. Crocker Industrial Park, *W March 27, 1966*. Tall stout biennial herb with terminal oblong flower clusters, of which the spine-like bracts are conspicuous and surpass the flowers, which appear in spring and summer. Has been cultivated in Europe for fulling in textile mills, hence the common name. Native of Europe.

Scabiosa atropurpurea Linnaeus. Pincushion Plant. Escape from cultivation along roadsides. Humboldt Road, Brisbane, *K November 8, 1963*. Attractive garden annual with terminal flower heads, flowers in whites, pinks, to purples throughout most of the year.

ERICACEAE. Heather Family

Arbutus menziesii Pursh. Madroño. Madrone. Rare, on eastern end of mountain, dry rocky ground. Brisbane Canyon (to east of Buckeye Canyon), *W May 25, 1965*; on frontage road to south of Brisbane, *McC, K September 11, 1964*. One of the important broad-leaved evergreen trees of the Pacific Coast region with clusters of small white bell-shaped flowers in spring followed by red fruits looking much like those of its relative, the European strawberry tree, *Arbutus unedo*. Ornamental.

Arctostaphylos imbricata Eastwood. Manzanita. Occasional, brushy slopes and ridges forming dense low colonies. Summit of mountain, northwest of lowermost radio tower, *McC*, *Menzies February 16, 1963*; West Powerline, *McC*, *K September 2, 1963*. Also reported by W. Knight and J. Roof from Kamchatka Point, Blue Blossom Hill and Manzanita Dike. Known only from San Bruno Mountain. The low-growing, much branched plants form mat-like colonies, flowers February to May. Plants regenerate by seed following fire.

Arctostaphylos montaraensis J. Roof. Montara manzanita. Rare, adjacent to a rocky outcrop about 300 yards east-northeast of Parking Lot, *Menzies, February 5, 1963*. Only one shrub known prior to 1964 fire. The fire destroyed the shrub but since the fire approximately a hundred seedlings have appeared. Erect shrub to about 6 feet at maturity with sessile leaves. Flowers in March. Known only from the San Bruno Mountain locality and on Peak Mountain in Montara Range about 15 miles airline to south.

Arctostaphylos pacifica J. Roof. Rare, one rocky outcrop. Only in one locality, Ridge Road about 300 yards northeast of Parking Lot on a prominent rocky outcrop, *McC*, *Menzies February 16, 1963*. Known only from San Bruno Mountain. Plants have a basal burl and stump-sprout after fire. Flowers in February. Ornamental.

Arctostaphylos uva-ursi (Linnaeus) Sprengel. Bear-berry. Kinnikinnick. Occasional, on west end of mountain on uppermost ridges. West Powerline, *McC*, *K September 2, 1963*; Cable Ravine, about 30 yards from the Monterey pine, largest colony on mountain, *K 864*; Kamchatka Point, *McC*, *Menzies February 16, 1963*; northern end of West Powerline Ridge, *K May 4, 1964*. San Bruno Mountain represents one of the southernmost stations known in California for this manzanita which has a wide circumboreal distribution in North America, Asia, and Europe. Low growing, mat-forming shrubs, flowers February and March. Ornamental.

Although one of the smaller genera on San Bruno Mountain the genus *Arctostaphylos* is one of the most interesting. *Arctostaphylos imbricata*, an endemic, is a prostrate sessile-leaved shrub which forms sizeable colonies and has been found at five locations. It is making a good recovery from the fire of 1964 due to the large amounts of seed which lay on the ground at the time of the fire. *Arctostaphylos pacifica*, a small-leaved burl-forming creeping manzanita is also making a comeback after the fire due to regeneration from root sprouts. It is found only at one rocky outcrop a couple of hundred yards below the parking lot and is distinguished by its reticulate leaf surfaces and serrulate leaf margins. Just adjacent and downhill a few yards was a six foot high shrub of *A. montaraensis* which was killed outright by the fire in 1964 but is being perpetuated nicely by the appearance of numerous seedlings. A cross section of this original shrub showed growth rings which indicated its age to have been about thirty years. The largest and only other colony of *A. montaraensis* is at its type locality on Montara Mountain Range, within sight, and about 15 airline miles to the south.

Arctostaphylos uva-ursi usually occurs on the north-facing slope of the mountain except for the colony previously mentioned near Cable Ravine. On Kamchatka Point there is a low-growing form with small suborbicular leaves borne on assurgent branchlets coming off of cord-like branches which are absolutely prostrate. It has been introduced to cultivation under the cultivar name of 'Miniature' and seems to be suitable as a ground cover. *Arctostaphylos uva-ursi*, in some of its localities along the Pacific Coast, hybridizes with adjacent species. Some of its plants on San Bruno Mountain, however, are characteristic of the species and do not appear to be of hybrid origin as they do farther to the south in Monterey County.

Gaultheria shallon Pursh. Salal. Rare. Known from only one locality on San Bruno Mountain. Brushy slope above Radio Road about $\frac{1}{4}$ mile from Eucalyptus grove, *Menzies*

January 12, 1964, and K 863. Evergreen spreading shrub of medium height with small urn-shaped flowers in spring followed by black berry-like fruits. Ornamental.

Vaccinium arbuscula (Gray) Merriam. Huckleberry. Rare, known only from two exposed rocky outcrops. Kamchatka Point, *McC*, *Menzies February 16, 1963*; Huckleberry Ridge, *K September 2, 1964*. Deciduous shrub to about 2 feet tall, flowers sparsely in March and April. The occurrence of *Vaccinium arbuscula* if indeed our material belongs to this species, is unexpected on San Bruno Mountain since it is a huckleberry of forested and montane areas to the north as far as British Columbia and east to the Sierra Nevada and the Rocky Mountains.

Vaccinium ovatum Pursh. Evergreen Huckleberry. Frequent, on exposed often rocky slopes, ridges, and ravines on upper part of mountain. Shrubs stump sprout in spring following fire. In two of its localities it occurs close to *Vaccinium arbuscula* from which it is distinguished by its evergreen, thickish and leathery leaves. Kamchatka Point, *Menzies May 17, 1964*; Quarry, *K June 24, 1963*; ravine ½ mile east of 1314-foot summit, *P 2693*; West Powerline, *McC*, *K June 2, 1963*; top of Dairy Ravine, *K August 5, 1964*; Huckleberry Ridge, *K May 4, 1964*. Erect, much branched, evergreen shrub with small bellshaped white, pink tinged flowers, March to May, followed by black edible huckleberries.

EUPHORBIACEAE. Euphorbia Family

Croton californicus Mueller-Argoviensis. Rare, in sandy soil. Pig Ranch Ravine, *W July 7, 1965*, and *K 1028*. Silvery-leaved perennial, inconspicuous flowers, June to November. Used by California Indians for stupefying fish.

Euphorbia crenulata Engelm. Chinese Caps. Wartweed. Occasional, on grassy or brushy slopes, or disturbed areas. Near Crystal Cave Canyon, *W June 20, 1965*; Colma Canyon, *K March 15, 1964*; Pig Ranch Ravine, *W May 12, 1965*, and *K 1113*; Olivet Cemetery, *W May 18, 1965*. Green-leaved annual or biennial with milky juice, and inconspicuous flowers February to November. Becomes weedy.

Euphorbia lathyris Linnaeus. Gopher Plant. Caper Spurge. Weed, escaping from cultivation in waste places. Hillside Boulevard near Cypress Hill Golf Course, *K October 7, 1963*. Coarse, blue-green, annual or biennial, with milky juice, upper leaves clasping the stem, and inconspicuous flowers, February to November. Native of Europe.

Euphorbia peplus Linnaeus. Petty Spurge. Weed, waste places. Crocker Avenue, *McC September 24, 1967*. Erect usually branched annual, to about 10 to 12 inches tall, small greenish flowers almost anytime. Native of Europe.

FAGACEAE. Oak or Beech Family

Quercus agrifolia Née. Coastal Live Oak. California Live Oak. Occasional, in woodland of canyons and ravines. Quarry, *K July 14, 1963*; Buckeye Canyon, *K August 5, 1963*; Point San Bruno on a bluff near shoreline, *McC*, *K September 11, 1964*. Also reported from the ridge to west of lower part of Owl's Canyon. Spreading, much branched evergreen oak, flowers in catkins, February and March. The leaves of this oak tend to be convex, sharply toothed, and to have tufts of hairs in the axils of the veins on the lower surface.

Quercus chysolepis Liebm. Maul Oak. Canyon Oak. Gold-cup Oak. Occasional, open rocky outcroppings on open slopes and in ravines. Crocker Hills, *McC*, *K September 2, 1963*; near Guadalupe Road, *K August 5, 1963*; Quarry, *K July 14, 1963*, and *June 24, 1963*; Buckeye Canyon, *W May 25, 1965*, and *K 722*; Bitter Cherry Ridge, *K May 4, 1964*. On San Bruno Mountain this oak tends to be a low shrub or small tree 6 to 8 feet tall.

The most dwarf of these low growing shrubs have been designated as *Quercus chrysolepis* Liebmann var. *nana* Jepson. This is an evergreen oak in which the leaves are thick and leathery, more or less brown hairy on lower surface, flowers in catkins in May and June. The acorns have scales more or less covered by golden-brown felt-like hairs, hence the common name, Gold-cup Oak.

Quercus moreha Kellogg. Oracle Oak. Rare, only on one ridge toward eastern end of mountain. Brisbane Powerline, *J. Roof April 25, 1965*. *Quercus moreha* originated as a hybrid between the deciduous *Q. kelloggii* and the evergreen *Q. wislizeni* and tends to be semi-deciduous. At its one locality on the mountain it is low growing to about 18 inches tall and spreading to several feet across. Has been called *Quercus morehus*.

Quercus wislizeni A. DeCandolle. Interior Live Oak. Occasional, in ravines and rocky open slopes. Plants regenerate by stump sprouts after fire. Quarry, *K July 14, 1963*; Buck-eye Canyon, *K August 5, 1963*; about 100 yards east of Parking Lot near Ridge Road, *K 1104*. *Quercus wislizeni* is an evergreen oak with thick, toothed, parallel-veined leaves. Plants on San Bruno Mountain are low growing, a form which has been designated as *Q. wislizeni* A. DeCandolle var. *frutescens* Engelm.

FRANKENIACEAE. Frankenia Family

Frankenia grandifolia Chamisso & Schlechtendal. Alkali Heath. Rare, salt flats and alkaline areas. Beach at Point San Bruno, *K September 2, 1964*; salt flat at Point San Bruno, *McC, K September 11, 1964*; Brisbane Lagoon, *W August 14, 1965*. Perennial sometimes exuding crystals of salt, with heath-like leaves, and rose-purple flowers, May to November.

FUMARIACEAE. Fumitory Family

Dicentra formosa (Haworth) Walpers. Pacific Bleeding Heart. Rare, in moist shaded areas. Creek in Colma Canyon, *K May 30, 1964*; Fern Rock near Guadalupe Creek, *K 1024*. In both localities it is sparse in occurrence. Although the creek in Colma Canyon was mostly covered for the Guadalupe Parkway bleeding heart may still be found in one place. Attractive perennial with much divided, fern-like leaves and attractive pale to deep lavender flowers in March and April. Ornamental.

GARRYACEAE. Silk Tassel Family

Garrya elliptica Douglas. Coast Silk Tassel. Silk Tassel Bush. Quinine Bush. Occasional, brushy slopes, in chaparral. Regenerates after fire by stump sprouting. Colma Canyon, *K May 4, 1964*; Sierra Point, *W April 27, 1965*; Quarry, *K June 24, 1963*; Bitter Cherry Ridge, *K April 4, 1965*; slope above Trillium Gulch, *McC April 27, 1965*; ravine just below top of mountain, *McC, Menzies February 16, 1963*. Evergreen shrub with stiff, leathery, undulate-margined leaves which are gray hairy on the lower surface, flowers are in long tassels, January to March. Plants are either male or female and both staminate and pistillate flower tassels are showy although the staminate hang more gracefully. Ornamental.

GENTIANACEAE. Gentian Family

Centaurium davyi (Jepson) Abrams. Centaury. Rare, in grassy areas, occurring sparsely. On fire trail west of Quarry, *W June 19, 1965*. Both this species and *Centaurium floribundum* are rather inconspicuous annuals with pink flowers in spring and summer.

Centaurium floribundum (Bentham) Robinson. Centaury. Rare, in grassy and disturbed areas, occurring sparsely. Crocker Industrial Park, *W March 27, 1966*.

GERANIACEAE. Geranium Family

Erodium botrys (Cavanilles) Bertoloni. Long-beaked Filaree. Common, weed in grassland and disturbed areas. Abandoned quarry at end of School Street, near Hillside Boulevard, *K October 7, 1963*; Ridge Road near Brisbane Powerline, *McC May 16, 1965*, and *K 958*; Crocker Avenue, *P 2637*, and *Toschi 63:32*; Hillside Boulevard, *P 2709*. Long-beaked filaree has simple but pinnately lobed leaves with relatively large flowers (petals to nearly $\frac{1}{2}$ inch long) in spring. Native of Mediterranean region.

Erodium cicutarium (Linnaeus) L'Heritier. Red-stemmed Filaree. Common, weed in grassland and disturbed areas. Colma Canyon, *K March 15, 1964*, and *McC June 13, 1965*; abandoned quarry at end of School Street near Hillside Boulevard, *K October 7, 1963*; Quarry, *K July 14, 1963*; Ridge Road, *McC May 16, 1965*, and *K 970*; Radio Road near radio stations, *McC, Menzies February 16, 1963*. Red-stemmed filaree has pinnately compound leaves with each leaflet finely divided, and relatively small flowers (petals about $\frac{1}{4}$ inch long) late winter into autumn. Native of southern Europe.

Erodium moschatum (Linnaeus) L'Heritier ex Aiton. White-stemmed Filaree. Musk Filaree. Weed in grassland and disturbed areas. Crocker Avenue, *P 2636*, and *Toschi 63:40*; ravine north of Randolph Avenue, *P 2747*; Guadalupe Valley, *P 2767*; Romanzoffia Ravine, *K May 4, 1964*. White-stemmed filaree has pinnately compound relatively long leaves ($2\frac{1}{2}$ to 12 inches long) with each leaflet coarsely serrate or cleft and relatively small flowers, about the same size as the red-stemmed filaree. Flowers late winter into autumn. Native of Mediterranean region.

Erodium obtusiplicatum (Maire, Weiler & Wilczek) J. T. Howell. Rare, weed in grassland and disturbed places. Romanzoffia Ravine, *K May 4, 1964*; Ridge Road near Brisbane Powerlines, *McC May 16, 1965*. This filaree which has no common name was long confused with *Erodium botrys* which it resembles in its simple but lobed leaves, its relatively large flowers and long beak of fruit. Flowers in spring and summer. Native of North Africa.

Geranium carolinianum Linnaeus. Carolina Geranium. Rare, on brushy or grassy slopes. Near Nike Base, *McC, W May 23, 1965*. Branched annual with pinkish flowers, April to October. A widely distributed plant from the Pacific to the Atlantic states.

Geranium dissectum Linnaeus. Cut-leaved Geranium. Occasional, weed in grassland and disturbed areas, often in partial shade. Colma Canyon, *K May 4, 1964*; Crocker Avenue, *P February 23, 1963*. Annual with leaves more deeply divided than *Geranium carolinianum* and small pink flowers, April to October. Native of Europe.

Geranium molle Linnaeus. Crane's-bill Geranium. Occasional, weed in grassland and disturbed areas, sometimes in shade of other plants. Colma Canyon, *McC, Halde, K June 23, 1963*; Nike Base, *K 1199*; Radio Road, *W May 23, 1965*. Annual or biennial with rose-pink flowers, February to June.

Geranium retrorsum L'Heritier ex DeCandolle. New Zealand Geranium. Occasional, weed in grassland and disturbed areas, sometimes in shaded areas. Radio Road, *McC, K September 2, 1963*; Cable Ravine, *K 860*; April Brook, *K 980*. Perennial with a taproot, plant covered with retrorse whitish hairs, flowers purple, March to September. Native of Australia and New Zealand. The four species of *Geranium* on San Bruno Mountain are inconspicuous annuals or perennials with small flowers and are not to be confused with the garden geraniums which belong to the South African genus *Pelargonium*.

HALORAGIDACEAE. Water Milfoil Family

Myriophyllum brasiliense Cambessèdes. Parrot Feather. Rare, growing in water. Crocker Industrial Park, *W March 27, 1966*. Aquatic perennial, stems supported by water, leaves finely dissected and appearing feathery, tiny flowers June to August. Cultivated as an aquarium plant but escapes. Native of South America.

HIPPOCASTANACEAE. Horse Chestnut or Buckeye Family

Aesculus californica (Spach) Nuttall. California Buckeye. Horsechestnut. Rare, part of woodland in ravines or slopes, often windswept and low in stature. Buckeye Canyon, *McC May 27, 1967*; Point San Bruno, *McC, K September 11, 1964*. Deciduous tree with round crown, leaves characteristically palmately 5-lobed and appear before the showy white and pinkish flowers borne on thick spike-like clusters, April to June. The leaves fall early even before the summer is over. The pear-shaped fruits usually have one glossy brown seed which contains poisonous substances. The Indians used the seeds for food after leaching with boiling water, and for stupefying fish.

HYDROPHYLLACEAE. Waterleaf or Phacelia Family

Eriodictyon californicum (Hooker & Arnott) Torrey. Yerba Santa. California Mountain Balm. Rare, in chaparral. Buckeye Canyon, *K July 14, 1963*; Owl's Canyon, *W June 17, 1965*; West Powerline, *K May 4, 1964*. Evergreen shrub with small pale blue flowers, April to July. Regenerates after fire both by root sprouts and by seeding itself.

Nemophila heterophylla Fischer & Meyer. Rare, moist brushy slope. Devil's Arroyo, *McC March 28, 1965*. Weak-stemmed annual with pale blue to white flowers, January to April.

Nemophila menziesii Hooker & Arnott. Baby-Blue Eyes. Occasional, moist open grassland or in chaparral, often coming up among other plants. Reservoir Hill, *K 879*, and *McC March 14, 1965*; Bitter Cherry Ravine, *K 1006*. Weak-stemmed, diffusely branched annual with showy pretty blue flowers, February to April. A favorite spring wild flower, its name commemorates Archibald Menzies, the early Scottish explorer of the Pacific coast who was with the Vancouver Expedition.

Nemophila parviflora Douglas ex Bentham. Rare, moist brushy slope. Devil's Arroyo, *K April 26, 1965*. Weak-stemmed annual with small inconspicuous flowers, March to June.

Phacelia californica Chamisso. One of the most common perennials on mountain, in grassland and chaparral. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Colma Canyon, *K 1197, K1214, K 1222*; ravine north of Randolph Avenue at Hillside Boulevard, *P 2739*; east facing slope below radio station, *Toschi 63:67*; slope south of 1314-foot summit, *P 2667*; ravine $\frac{1}{2}$ mile east of 1314-foot summit, *P 2691*; exposed slopes below summit, *McC June 9, 1963*; Quarry, *K July 14, 1963*; Romanzoffia Ravine, *K May 4, 1964*; Huckleberry Ridge, *K May 4, 1964*; Cable Ravine, *McC March 14, 1965*; Bitter Cherry Ravine, *K 1010*; Glen Park Canyon, *McC April 16, 1967*. Gray hairy perennial with blue to purplish flowers, March to September.

Phacelia distans Bentham. Wild Heliotrope. Occasional, rocky, sandy, and brushy slopes. South facing slope near West Powerline, *McC March 14, 1965*; Pig Ranch Ravine, *W May 11, 1965, K May 15, 1965*. Weak-stemmed annual with blue flowers, March to June.

Phacelia malvaefolia Chamisso. Stinging Phacelia. Occasional, on brushy slopes. Colma Canyon, *McC, Halde, K June 23, 1963*; Romanzoffia Ravine, *K May 4, 1964, McC March*

28, 1965. Weak stemmed annual with coarse conspicuous hairs, and dull white inconspicuous flowers, April to July.

Pholistoma auritum (Lindley) Lilja ex Lindblom. Fiesta Flower. Climbing Nemophila. Rare, under shade in wooded slopes. Sierra Point, *W April 27, 1965*; Gladys Canyon, *W June 16, 1965*. Weak stemmed annual with coarse hairs, short recurved prickles, and blue flowers, March to June.

Romanzoffia suksdorfii Greene. Mist-Maiden. Occasional, on shaded or open moist rocky areas. Romanzoffia Ravine, *K May 4, 1964, McC March 28, 1965*; Buckeye Canyon, *W May 8, 1965*. Reported in Owl's Canyon by James Roof. Attractive, dainty, tuberous-rooted perennial with mostly basal leaves and small white flowers, March to May. Ornamental.

HYPERICACEAE. St. John's Wort Family

Hypericum anagalloides Chamisso & Schlechtendal. Creeping St. John's Wort. Tinkers Penny. Rare, along seepages or stream sides. Cow Trough Ravine, *K October 7, 1963*; stream in Colma Canyon, *W June 16, 1965*. Perennial with prostrate and a few erect stems and small yellow flowers, March to July.

LABIATAE. Mint Family

Lepechinia calycina (Benth) Epling [*Sphacele calycina* Benth]. Pitcher Sage. Occasional, in brushy areas. Regenerates by seedlings after a fire. Crocker Hills, *K, McC September 2, 1963*; Guadalupe Road, *K August 5, 1963*; ravine west of Crystal Cave Canyon, *W June 20, 1965*. Low-growing, aromatic shrub with somewhat woolly leaves and showy white flowers, April to July. Ornamental.

Marrubium vulgare Linnaeus. White Hoarhound. Rare, weed of waste ground. Along Bayshore Highway, South San Francisco, *W March 20, 1966*. White woolly perennial with small white flowers in dense heads, February to July. Native of Europe.

Mentha spicata Linnaeus. Spearmint. Escape from cultivation in wet ground. Crocker Avenue, *W July 7, 1965*. Pleasantly fragrant perennial with lavender flowers in a spike-like inflorescence, July to October. Native of Europe.

Monardella villosa Benth. Coyote Mint. Pennyroyal. Common, on brushy and rocky areas. Regenerates after fire by root sprouts. Quarry, *K July 14, 1963, and K June 4, 1963*; lower Buckeye Canyon, *McC September 29, 1966*; lower Colma Canyon, *McC, Halde, K June 23, 1963*; slope above April Brook, *McC August 1, 1965*; lower area of Quarry, *McC August 1, 1965*; West Powerline, *McC March 25, 1965*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; canyon east of Quarry, *W June 19, 1965*; Dairy Ravine, *K August 5, 1963*. An erect perennial, 12 to 18 inches tall, with lavender flowers in compact heads, June to August. Two forms are described which may sometimes be distinguished on San Bruno Mountain. Var. *villosa* has "thin" nearly glabrous leaves, and is mostly on the eastern side of the mountain. Var. *franciscana* (Elmer) Jepson has "thickish" usually densely hairy leaves, and is mostly on the western side of the mountain.

Pogogyne serpylloides (Torrey) Gray. Rare, moist grassy and brushy places. South Powerline near summit, *McC April 25, 1965*; fire trail west of Quarry, *W June 19, 1965*. Slender aromatic annual with small lavender flowers, April to June. Grows in shade of surrounding plants and is easily overlooked.

Prunella vulgaris Linnaeus subsp. *lanceolata* (Barton) Hultén. Rare, on grassy or semi-shaded slopes. Upper Colma Canyon near Radio Road, *W July 7, 1965*; Colma Canyon, *K August 5, 1963*. Perennial with lanceolate leaves, and light purple flowers, April to December.

Salvia spathacea Greene. Crimson Sage. Pitcher Sage. Common, open grassy or rocky slopes. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Colma Canyon, *K 1218, Raven 1787*; slope southeast of 1314-foot summit, *P 2681*; West Powerline, *McC, K September 2, 1963*; Brisbane Powerline, *K 953*; Trillium Gulch, *McC March 28, 1965*. Coarse, gray hairy, aromatic perennial with reddish flowers in showy heads, March to June.

Satureja douglasii (Benth) Briquet [*Micromeria douglasii* Benth]. Yerba Buena. Frequent, in grassland and brushy areas, creeping on ground at base of surrounding plants. Slope above April Brook, *McC August 1, 1965*; Ridge Road at Saddle Camp, *K August 5, 1963*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; West Powerline, *McC, K September 2, 1963*; Point San Bruno, *K March 13, 1964*. Fragrant, evergreen trailing perennial, rooting at the stem tips, small whitish flowers, May to August.

Scutellaria tuberosa Benth. Skull-cap. Rare, on brushy slopes, under shade of surrounding plants. Glen Park Canyon, *McC April 30, 1967*. Low growing, fragrant perennial with tubers on the root-stocks and dainty blue flowers, March to May.

Stachys ajugoides Benth. Hedge Nettle. Rare, low often wet ground and waste places. Colma Canyon, *K August 5, 1963*; Radio Road, *K August 5, 1963*. Coarse perennial, flowers May to October.

Stachys bullata Benth. Hedge Nettle. Occasional, edge brushy areas and shaded slopes. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Quarry, *K July 14, 1963*; Cow Trough Ravine, *October 7, 1963*. Coarse perennial, flowers April to September.

Stachys chamissonis Benth. Coast Hedge Nettle. Rare, in moist places and ravine creek bottoms. Devil's Arroyo, *McC March 28, 1965, K 1101*; near source of Guadalupe Creek, *K 988*. Rather tall coarse perennial, flowers March to May.

Stachys rigida Nuttall ex Benth subsp. *quercetorum* (Heller) Epling. Hedge Nettle. Frequent, on open grassy slopes and brushy hillsides, often in colonies. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; Bitter Cherry Ridge, *K 1012*; near Nike Base, *McC, W May 23, 1965*; Point San Bruno, *K 1063*; Crocker Hills, *K May 4, 1964*; Glen Park Canyon, *McC April 16, 1967*. Coarse perennial, flowers March to July.

LAURACEAE. Laurel Family

Umbellularia californica (Hooker & Arnott) Nuttall. California Laurel. California Bay. Oregon Myrtle. Woodland in Buckeye Canyon, *McC September 29, 1966*. Evergreen tree with pungently aromatic, coriaceous leaves and clusters of small yellow-green flowers, January to March. A relative of the Mediterranean laurel, *Laurus nobilis*, its leaves may be used as a seasoning, but since its leaves are more pungent than the Mediterranean tree it should be used with discretion. Its hard wood takes a fine polish and is used for making small ornaments.

LEGUMINOSAE. Pea or Bean Family

Acacia decurrens Willdenow. Green Wattle. Escape from cultivation and occasionally naturalized. Crocker Avenue, *McC, K January 12, 1963*. Tree with finely divided leaves and yellow flowers, January to March. Native of Australia.

Acacia melanoxylon R. Brown. Blackwood Acacia. Black Acacia. Escape from cultivation and occasionally naturalized. Cable Ravine, *McC March 14, 1965*; Horseshoe Ridge, *K August 5, 1963*. Tree with leaves reduced to 2 to 5 nerved phyllodia, yellow flowers, February and March. Native of Australia.

Acacia retinodes Schlechtendal. Everblooming Acacia. Escape from cultivation and occasionally naturalized. Crocker Avenue, *McC, K January 12, 1964, W July 7, 1965*. Tree with leaves reduced to 1-nerved phyllodia, yellow flowers January to August. Native of Australia.

Albizia distachya (Ventenat) Macbride [*A. lophantha* (Willdenow) Benth]. Stink Bean. Plume Albizia. Escape from cultivation and occasionally naturalized. Bayshore Highway, *W June 8, 1965*. Tree with finely divided leaves and yellow flowers in a spike-like plume, late winter and spring. Native of Australia.

Astragalus nuttallii (Torrey & Gray) J. T. Howell var. *virgatus* (Gray) Barneby. Locoweed. Occasional, in grassland, and in the open on sandy soil. Flower Garden near Radio Road, *W June 20, 1965, W August 16, 1965*; south of Pig Ranch Ravine, *W July 7, 1965*; near Olivet Cemetery, *W May 18, 1954*; April Brook, *J. Roof July 17, 1963*. Robust but weak-stemmed perennial with greenish-white flowers, April to October.

Cytisus maderensis Masferrer. Broom. Escape from cultivation and naturalized in disturbed places. Radio Road, *K August 5, 1963*. Evergreen shrub with yellow flowers in spring. Native of Madeira.

Cytisus monspessulanus Linnaeus. French Broom. Escape from cultivation and is naturalized in disturbed places.

Cytisus scoparius (Linnaeus) Link. Scotch Broom. Escape from cultivation and naturalized in disturbed places. Brisbane, *W April 27, 1965*; Sierra Point, *W April 27, 1965*. Nearly leafless shrub with large yellow or sometimes yellow and brown flowers, spring.

Lathyrus odoratus Linnaeus. Sweet Pea. Escape from cultivation, occasionally becoming established in disturbed places. Point San Bruno, *W May 8, 1965*. Annual with fragrant flowers in different colors, spring. Native of Italy.

Lathyrus vestitus Nuttall ex Torrey & Gray. Pacific Pea. Common, on brushy areas, climbing on adjacent shrubs or spreading on the ground. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Colma Canyon, *W June 13, 1965, K March 15, 1964*; slope southwest of Brisbane, *P 2759*; South Powerline, *McC March 14, 1965*; Reservoir Hill, *McC March 14, 1965*; Devil's Arroyo, *McC March 28, 1965*; West Powerline, *McC March 10, 1965*. Perennial with well developed tendrils, pink to pale purplish flowers usually fading with age, March to July. A variable species divided into two or more subspecies on the basis of height of plant, internode length, and amount of pubescence.

Lotus corniculatus Linnaeus. Bird's Foot Trefoil. Weed of roadsides and other disturbed areas. Crocker Industrial Park, *McC July 29, 1966*; West Powerline, *W May 18, 1966*. Prostrate perennial with yellow flowers, June to August. Native of Europe.

Lotus micranthus Benth. Bird's Foot Trefoil. Frequent, in grassland and edge of brushy areas. Colma Canyon, *K May 30, 1964*; April Brook, *McC March 28, 1965*; Bitter Cherry Ridge, *K April 4, 1965*; Buckeye Canyon, *W March 30, 1965*; Crocker Hills, *McC April 11, 1965*. Slender-stemmed annual with small salmon-colored flowers, March to June.

Lotus purshianus (Bentham) Clements & Clements. Spanish Clover. Rare, in grassland. Sierra Point, *W* May 8, 1965. Low-growing annual, sometimes forming mats, with small pinkish-white flowers, April to October.

Lotus scoparius (Nuttall) Ottley. Deerweed. Frequent, in many habitats, in grassy and brushy areas. Lower Colma Canyon, *McC, Halde, K* June 23, 1963; Radio Road, *McC, K* September 2, 1963; Owl's Canyon, *W* June 7, 1965; near Olivet Cemetery, *W* May 18, 1965; Crocker Hills, *K* May 4, 1964. Brushy perennial with erect to spreading green virgate stems and flowers yellow tinged with red, May to October.

Lotus subpinnatus Lagasca. Frequent, in grassland and brushy slopes, sometimes in disturbed places. Crystal Cave Canyon, *K* 1252; Devil's Arroyo, *K* May 9, 1965; Pig Ranch Ravine, *K* May 15, 1965; Crocker Industrial Park, *McC* March 28, 1965. Low growing, weak-stemmed annual with small, yellowish, solitary, sessile flowers, March to June.

Lupinus affinis Agardh. Rare, in grassland. Colma Canyon, *McC, W* June 13, 1965. Annual with blue flowers, April to June.

Lupinus albifrons Bentham ex Lindley. Silver Bush Lupine. Common, open rocky slopes. Colma Canyon, *K* May 4, 1964; Randolph Drive at Hillside Boulevard, *P* 2725; Sierra Point, *W* April 27, 1965; Motorcycle Ridge, *K* August 5, 1963; west facing slope below top of mountain, *McC* April 17, 1964; ravine ½ mile east of summit, *P* 2685; Glen Park Canyon, *McC* April 16, 1967. Attractive shrub or subshrub with silvery-gray foliage and blue flowers April to June. This lupine is variable in habit and two forms may sometimes be recognized. Plants erect and up to 3 to 4 feet tall may be called var. *albifrons* and those lax and spreading with stems less than 18 inches may be called var. *collinus* Greene.

Lupinus arboreus Sims. Bush Lupine. Yellow Beach Lupine. Occasional, mostly in sandy areas or disturbed places. Colma Canyon, *McC* June 13, 1965; Sierra Point, *W* May 8, 1965; top of mountain near radio station, *McC, Halde* June 23 1963. Attractive shrub with yellow flowers, March to September. Occurring commonly in sandy soil along the coast of northern and central California.

Lupinus bicolor Lindley. Frequent, in grassland. Slopes southwest of Brisbane, *P* 2757; Bitter Cherry Ridge, *K* 1008; Ridge Road, *K* March 14, 1965; Guadalupe Road, *McC* April 11, 1965; Flower Garden adjacent to April Brook, *K* 975; Crocker Industrial Park, *W* June 19, 1965. Annual with small blue flowers, March to June. This common spring wildflower is a variable species with several forms separated on the basis of technical characters of the flowers.

Lupinus chamissonis Eschscholtz. Blue Beach Lupine. Rare, in sandy soil. Colma Canyon, *K* 973. Shrubby, with blue flowers, March to August. Frequently seen in sandy soil along the coast of central and southern California.

Lupinus formosus Greene. Rare, dry open often sandy areas. Sierra Point, *W* June 21, 1965. Perennial with lavender flowers, May and June.

Lupinus micranthus Douglas ex Lindley. Occasional, in grassland. Guadalupe Valley, *P* 2764; West Powerline, *K* 709. Annual with small blue flowers, March to May. Resembles *Lupinus bicolor* from which it usually may be distinguished by the glabrous or sparsely hairy upper leaf surfaces.

Lupinus nanus Douglas ex Bentham. Frequent, in grassland, often forming showy colonies. Colma Canyon, *McC, W* June 13, 1965; Crocker Industrial Park, *W* May 1,

1966; Sierra Point, *W April 27, 1965*. Annual with dark blue or rarely white flowers, March to June.

Lupinus succulentus Douglas ex Koch. Rare, in disturbed ground. Point San Bruno, *K March 30, 1964*. Stout, hollow-stemmed annual with blue flowers.

Lupinus varicolor Steudel. Frequent, in grassland or open gravelly places. Colma Canyon, *K May 4, 1964*; east facing slope below top of mountain, *McC April 17, 1964*; West Powerline, *K 1042*. Perennial, often decumbent, with flowers of varying shades of blues, pinks, yellows and whites.

Medicago polymorpha Linnaeus var. **vulgaris** (Bentham) Shinnery [*M. hispida* Gaertner]. Bur Clover. Weed of disturbed places. Randolph Drive at Hillside Boulevard, *P 2718*; Colma Canyon, *K May 30, 1964*; Point San Bruno, *K 1033*. Weak-stemmed annual with small yellow flowers, March to June, and a coiled spiny pod. Native of Europe.

Medicago sativa Linnaeus. Alfalfa. Lucerne. Weed of roadsides and waste ground, an escape from cultivation. Frontage road at north city limits of South San Francisco, *McC, K September 11, 1964*; Brisbane Lagoon, *W June 19, 1965*. Perennial with small blue flowers, spring to autumn. An important forage plant, native of the Old World.

Melilotus albus Desrousseaux ex Lamarck. White Sweet Clover. Weed, waste places. Crocker Avenue, *McC September 24, 1967*. Tall erect annual or biennial with tiny white flowers, spring to autumn. Native of Eurasia.

Melilotus indicus (Linnaeus) Allioni. Indian Sweet Clover. Weed of waste ground and disturbed places. Point San Bruno, *McC, K September 11, 1964*; Sierra Point, *W May 8, 1965*. Erect annual with small yellow flowers, April to October. Native of Old World.

Melilotus officinalis (Linnaeus) Lamarck. Weed of roadsides and disturbed places. Crocker Industrial Park, *W June 8, 1965*. Erect annual with small yellow flowers, May to August. Native of Europe.

Pisum sativum Linnaeus. Garden Pea. Weed of disturbed places. Cow Palace area, *W May 17, 1965*. Annual, flowers in spring. An edible plant which occasionally escapes from cultivation. Native of the Old World.

Trifolium amplexens Torrey & Gray. Sack Clover. Occasional, in grassland. Point San Bruno, *K 1078*; Bitter Cherry Ravine, *K May 15, 1965*; West Powerline, *McC March 28, 1965*. Annual with purple or sometimes pale flowers in small heads, March to June. At maturity the flowers become inflated, like tiny sacks, hence the common name.

Trifolium bifidum Gray. Rare, in grassland. Radio Road, *W May 23, 1965*; April Brook, *K May 15, 1965*. Annual with pale pink flowers. April and May, on slender recurved pedicels.

Trifolium dubium Sibthorp. Shamrock. Weed of waste places, lawns, and other disturbed areas. Near Cow Palace, *W May 18, 1965*. Annual with small yellow flowers, May and June. Native of Europe.

Trifolium gracilentum Torrey & Gray. Occasional, in grassland and disturbed areas. North of Randolph Drive at Hillside Boulevard, *P 2719*; Pig Ranch Ravine, *K May 15, 1965*; Crocker Hills near Guadalupe Road, *McC April 11, 1965*. Slender-stemmed annual with small heads of little pink flowers, March to May.

Trifolium microcephalum Pursh. Occasional, in open grassland. Slope above Quarry, *McC August 1, 1965*; Devil's Arroyo, *K May 9, 1965*; West Powerline, *McC March 28, 1965*. Slender-stemmed annual with pinkish flowers in small heads, April to June.

Trifolium microdon Hooker & Arnott. Occasional, in open grassland or rocky slopes. Pig Ranch Ravine, *K May 15, 1965*; West Powerline, *McC March 28, 1965*. Slender-stemmed annual with pinkish flowers, March to July.

Trifolium repens Linnaeus. White Clover. Escapes from cultivation, sometimes used in lawns, and naturalized. West Powerline, *W May 18, 1965*; Radio Road, *K August 5, 1965*. Perennial with whitish flowers in showy heads, April to October. Native of Europe.

Trifolium tridentatum Lindley. Tomcat Clover. Occasional, in grassland, sometimes forms colonies. Pig Ranch Ravine, *K May 15, 1965*; Nike Base, *K May 15, 1965*; Devil's Arroyo, *K May 9, 1965*; Ridge Road, *May 16, 1965*. Annual with erect to decumbent stems and red-purple flowers in showy heads, March to May.

Trifolium wormskjoldii Lehmann. Occasional, in wet or marshy places. April Brook, *W May 18, 1965*; Crocker Industrial Park, *W May 17, 1965*. Creeping perennial with decumbent stems and light purple flowers in showy heads, April and May.

Ulex europaeus Linnaeus. Gorse. Furze. Escape from cultivation, becoming weedy in disturbed areas. North of Crocker Avenue, *Toschi 63:37*; Crocker Hills, *McC, K September 2, 1963*. Spiny shrub with yellow flowers, February to July. Native of Europe.

Vicia americana Muhlenberg ex Willdenow. American Vetch. Frequent, in grassy and brushy areas, often scrambling over other plants. Colma Canyon, *K May 4, 1964*; Nike Base, *K 1232*; Kamchatka Point, *K March 21 1965*; South Powerline, *McC March 14, 1965*. Trailing perennial with purplish flowers, March to May. Resembles *Lathyrus vestitus*.

Vicia angustifolia Linnaeus. Common Vetch. Weed of roadsides and waste places. Crocker Hills, *K May 4, 1964*. Trailing perennial with fairly large purple flowers, April to June. Native of Europe.

Vicia benghalensis Linnaeus. Vetch. Weed of roadsides and disturbed areas. Vicinity of Cow Palace, *W May 17, 1965*. Pubescent annual with rose-purple flowers, April to June. Native of Mediterranean region.

Vicia gigantea Hooker. Giant Vetch. Occasional, in moist open or brushy places, rampant climber on adjacent shrubs. Colma Canyon, *K May 30, 1964*; base of Quarry, *K July 14, 1963*; Radio Road, *W May 23, 1965*; April Brook, *McC March 28, 1965*; Wax Myrtle Ravine, *K August 5, 1963*. Perennial with stout trailing stem and reddish-purple flowers, March to August.

Vicia sativa Linnaeus. Spring Vetch. Weed along roadsides and disturbed areas. Upper Colma Canyon, *McC, W June 11, 1967*. Annual with sessile, light and dark purple flowers March to July. Native of Europe.

LINACEAE. Flax Family

Linum usitatissimum Linnaeus. Flax. Escape from cultivation and becoming weedy along roadsides and disturbed places. San Bruno Hills, *Vincent Jones April 1921*. Slender, branched annual with pretty blue flowers, March to July. Native of Europe. Not reported from our area within recent years.

LYTHRACEAE. Loosestrife Family

Lythrum hyssopifolia Linnaeus. Loosestrife. Occasional, in moist places as damp creek beds, and meadows. Crocker Hills, *McC* September 2, 1963; Radio Road, *K* August 5, 1963; fire trail west of Quarry, *W* June 19, 1965; Sierra Point, *W* August 8, 1965; Crocker Industrial Park, *W* June 8, 1965. Slender annual with small linear leaves and pale purple flowers, April to October. Widely distributed in the northern hemisphere from North America to Europe.

MALVACEAE. Mallow Family

Lavatera arborea Linnaeus. Tree Mallow. Escape from cultivation along roadsides, becoming spontaneous. Bayshore highway, Brisbane, *W* June 8, 1965. Shrubby with red-purple flowers, May to July.

Lavatera assurgentiflora Kellogg. Malva-Rose. Escape from cultivation, used as a windbreak, and occasionally becoming spontaneous. Hillside Boulevard near Cypress Hill Golf Course, *K* October 7, 1963. Shrubby, sometimes a small tree, showy rose-purple flowers almost throughout the year. Native of the Channel Islands.

Lavatera cretica Linnaeus. Weed of waste places, fields, and roadsides. Point San Bruno, *K* 1032; lower Pig Ranch Ravine, *K* April 4, 1965; Crocker Hills, *K* 2043; Colma Canyon, *McC*, *Halde*, *K* June 23, 1963. Annual with small pinkish flowers, spring through autumn. Native of Mediterranean region.

Malva nicaeensis Allioni. Bull Mallow. Weed of roadsides, waste places, and around habitations. Crocker Hills, *W* May 17, 1965. Annual with pale lavender flowers, spring through summer. Native of Europe.

Malva parviflora Linnaeus. Cheeseweed. Weed of waste ground, fields, and around habitations. Crocker Industrial Park, *W* October 16, 1966. Annual with pale pinkish flowers, spring through summer. Native of Europe. The small disk-shaped fruits or "cheeses" are edible.

Sidalcea malvaeflora (DeCandolle) Gray ex Bentham. Checker Bloom. Wild Hollyhock. Common, on open grassy areas. Crocker Avenue, *P* 2633; Randolph Drive, *P* 2710; Colma Canyon, *McC*, *Halde*, *K* June 23, 1963; Radio Road, *K* 1245; Flower Garden adjacent to April Brook, *McC* March 28, 1965; top of mountain near radio station, *McC*, *Menzies* February 16, 1963; slope southeast of summit, *P* 2674. Attractive perennial with pink flowers, February to June.

MYRICACEAE. Wax Myrtle or Bayberry Family

Myrica californica Chamisso & Schlechtendal. California Wax Myrtle. Rare, in moist ravines. Wax Myrtle Ravine, *K* August 5, 1963; canyon south of Pig Ranch Ravine, *W* July 7, 1965. Evergreen tree with inconspicuous flowers, April to June. Ornamental.

MYRTACEAE. Myrtle Family

Eucalyptus globulus Labillardière. Blue Gum. Spontaneous with planted trees. Fog Forest along old Guadalupe Road, *K* January 15, 1964; Horseshoe Ridge, *K* August 5, 1965. Tall tree with peeling bark and white flowers, January to May. Native of Tasmania and Victoria, Australia.



FIGURE 8. *Camissonia ovata* (Nuttall ex Torrey & Gray) Raven.

NYCTAGINACEAE. Four-o'Clock Family

Mirabilis jalapa Linnaeus. Four-o'Clock. Marvel of Peru. Escape from cultivation and occasionally spontaneous. Marshy area near Bayshore Freeway, *K October 4, 1966*. Perennial with showy flowers in shades of rose-pink to purple and white, opening in late afternoon, August to October. Native of tropical America.

ONAGRACEAE. Evening Primrose Family

Camissonia dentata (Cavanilles) Reiche [*Oenothera contorta* Douglas ex Hooker var. *strigulosa* (Fischer & Meyer) Munz]. Rare, open areas in deep sandy soil. Mouth of Colma Canyon, *K April 15, 1965*; Pig Ranch Ravine, *K May 16, 1967*. Annual with small yellowish flowers, April to July.

Camissonia micrantha (Hornemann ex Sprengel) Raven [*Oenothera micrantha* Hornemann ex Sprengel]. Rare, in grassland or sandy areas. Pig Ranch Ravine, *K April 24, 1965*; *K May 16, 1967*. Annual with small yellow flowers, April to July.

Camissonia ovata (Nuttall ex Torrey & Gray) Raven [*Oenothera ovata* Nuttall]. Suncup. Frequent, in grassland. Flower Garden near April Brook, *McC March 28, 1965*; near Nike Base, *McC May 23, 1965*; eastern side of mountain about ¼ mile east of Brisbane Powerlines, *K 952*; Glen Park Canyon, *McC April 16, 1967*. Perennial with deep taproot, basal rosette of leaves, and bright yellow flowers, February to June.

Clarkia davyi (Jepson) Lewis & Lewis. Occasional, grassy slopes. Crystal Cave Canyon,

PLATE 3. Upper. *Clarkia rubicunda* (Lindley) Lewis & Lewis.
Lower. *Castilleja wightii* Elmer.

→



K June 20, 1965; Buckeye Canyon, *W May 25, 1965*. Annual, stem sometimes stout, leaves ovate and more or less crowded, flowers pinkish, petals sometimes spotted, May and June.

Clarkia purpurea (Curtis) Nelson & Macbride. Occasional, in grassland. Above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Slender annual with dark red-purple flowers, the petals lacking spots, April to July.

Clarkia rubicunda (Lindley) Lewis & Lewis. Farewell-to-Spring. Frequent, in grassland. Sierra Point, *W June 21, 1965*; Colma Canyon, *McC, Halde, K June 23, 1963*; Crystal Cave Canyon, *K June 20, 1965*; Quarry, *K July 14, 1963*; Buckeye Canyon, *W June 7, 1965*; above Olivet Cemetery, *McC June 13, 1965*. Showy annual often branched above, with pink flowers, petals often with red spot at base, April to August. Ornamental.

Epilobium adenocaulon Haussknecht. Northern Willow-Herb. Occasional, in moist places. Quarry, *McC August 1, 1965*; Sierra Point, *W May 8, 1965*; Radio Road, *McC, K September 2, 1963*; Cow Trough Ravine, *K October 7, 1963*; Crystal Cave Canyon, *K June 20, 1965*. Perennial with pale to dark pink flowers, June to October.

Epilobium franciscanum Barbey. San Francisco Willow-Herb. Occasional, in moist places. Guadalupe Road, *K August 5, 1963*; Wax Myrtle Ravine, *K August 5, 1963*; slope below top of mountain, *McC June 9, 1963*; Colma Canyon, *K May 30, 1964*; Radio Road, *K June 20, 1965*; Crystal Cave Canyon, *K June 20, 1965*. Perennial with pink flowers, April to June.

Epilobium paniculatum Nuttall. Willow-Herb. Occasional, in open usually dry disturbed areas. Crocker Avenue, *K August 5, 1963*; Cow Trough Ravine, *K October 7, 1963*; Radio Road, *McC, K September 2, 1963*; Great Meadow near Radio Road, *W August 16, 1965*; Quarry, *K July 7, 1963*. Annual, stem of mature plants almost woody and with exfoliating epidermis, small pinkish flowers, May to October.

Epilobium watsonii Barbey. Willow-Herb. Occasional, in moist areas. Radio Road, *McC, K September 2, 1963*; Cow Trough Ravine, *K October 7, 1963*; Crystal Cave Canyon, *K June 20, 1965*. Perennial with dark pink flowers, June and July.

Oenothera hookeri Torrey & Gray. Rare, in a seepage area. Upper Colma Canyon, *McC, W June 11, 1967*. Coarse biennial, 3 to 4 feet tall with large yellow showy flowers, June to October.

Zauschneria californica Presl. California Fuchsia. Occasional, dry rocky or brushy areas. South Powerline, *Menzies March 14, 1965*; Pig Ranch Ravine, *K 1112, W July 7, 1965*. Suffrutescent, decumbent, grayish perennial with showy red flowers, July to November. Ornamental.

OROBANCHACEAE. Broomrape Family

Orobanche uniflora Linnaeus. Broomrape. Rare, on rocky ledges, parasitic on *Sedum spathulifolium*. Owl's Canyon, *K, McC, W April 25, 1965*. Stems fleshy, colorless, and leafless, flowers purple, March and April.

OXALIDACEAE. Oxalis Family

Oxalis pes-caprae Linnaeus. Bermuda Buttercup. Cape Oxalis. Weedy escape from cultivation in grassland and disturbed areas. Crocker Avenue, *K January 15, 1964*; Reservoir Hill, *K February 28, 1965*; South Powerline, *Menzies March 14, 1965*. Stemless perennial, leaves all basal, bright yellow showy flowers February to June. Native of South Africa.

This attractive weed is undesirable because the scaly bulbs on its rootstocks make it difficult to eradicate.

Oxalis pilosa Nuttall. Hairy wood sorrel. Occasional, grassland. Colma Canyon, *McC*, *Halde*, *K* June 23, 1963; Guadalupe Road, *McC*, *Ryder* February 16, 1964; Nike Base, *K* 1239; Ridge Road near Powerlines, *McC* April 25, 1965; Glen Park Canyon, *McC* April 16, 1967. Low growing perennial with small yellow flowers, April to June.

PAPAVERACEAE. Poppy Family

Eschscholzia californica Chamisso. California Poppy. One of the mountain's commonest spring wildflowers, in grassland and disturbed areas. Cable Ravine, *McC* March 14, 1965; rocky slope near Parking Lot, *McC*, *Halde* June 23, 1963; Randolph Avenue, *P* 2706; Ridge Road on summit of mountain, *K* 632. Usually a biennial with gray-green much divided leaves and showy orange colored flowers, March to October or occasionally other times during the year.

Meconella californica Torrey. Rare, wet rocky slopes and grassland, sometimes in small colonies. Ravine east of Brisbane Powerlines, *McC* March 21, 1965; Devil's Arroyo, *McC* March 28, 1965; Glen Park Canyon, *McC* April 16, 1967. Slender glabrous annual with obovate to spatulate basal leaves, and small white flowers, February to April.

Meconella linearis (Benth) Nelson & Macbride. Known only from a collection made in "San Bruno Hills" by A. D. E. Elmer (no. 4594) in June, 1903. Differs from preceding species by its linear basal leaves and spreading hairs on flowering stems.

Papaver somniferum Linnaeus. Opium Poppy. Escape from cultivation. Pig Ranch Ravine, *K* May 15, 1965. Coarse, gray-green annual with milky juice, upper leaves clasping the stem and large, white, pink or purplish flowers. Native of Old World. Sometimes cultivated for its large flowers. Opium is obtained from milky juice of fruit.

Platystemon californicus Benth. Cream-Cups. Occasional, grassland and brushy areas. Colma Canyon, *McC*, *Halde*, *K* June 23, 1963; above Harold Avenue, Brisbane, *W* March 30, 1965; Devil's Arroyo, *McC* March 28, 1965; Quarry, *W* July 8, 1965. Annual with spreading hairs, entire leaves, and cream-colored flowers, March to June.

Stylomecon heterophylla (Benth) Taylor. Wind Poppy. Rare, moist shaded often grassy slopes, sometimes appearing in abundance after a fire. Devil's Arroyo, *K* 1017; Owl's Canyon, *K* 1072; lower slopes of West Powerline, *W* May 12, 1965. Glabrous annual with divided leaves and scarlet flowers, March to May.

PLANTAGINACEAE. Plantago Family

Plantago coronopus Linnaeus. Weed, on salt flats. Sierra Point, *W* May 8, 1965; Brisbane Lagoon, *W* June 19, 1965. Annual (sometimes a perennial) with coarsely toothed leaves and flowers in spikes 2 to 3 inches long, March to August. Native of the Old World.

Plantago erecta Morris [*P. hookeriana* Fischer & Meyer var. *californica* (Greene) Poe]. California Plantain. Frequent, open slopes at edge of chaparral and in grassland, sometimes forming sparse to dense colonies. Randolph Avenue, *P* 2732; Colma Canyon, *K* March 15, 1964; Glen Park Canyon, *McC* April 16, 1967; Devil's Arroyo, *K* 1106; Crystal Cave Canyon, *W* June 20, 1965; slope below Parking Lot, *McC* June 9, 1963. Slender annual with entire linear leaves and flowers in spikes to as much as 1 inch long, January to June.

Plantago hirtella Humboldt, Bonpland & Kunth var. *galeottiana* (Decaisne) Pilger. Mexican Plantain. Rare, in damp areas and in places where water seeps. Radio Road adjacent to radio station near top of mountain, *McC, Halde, June 23, 1963, W June 20, 1965*; Colma Canyon, *K August 5, 1963*. Perennial with broadly ovate leaves and flowers in spikes 5 to 6 (or more) inches long.

Plantago lanceolata Linnaeus. Ribgrass. English Plantain. Buckhorn. Weed of roadsides and other disturbed areas, and in grassland. South of Crocker Avenue, *P 2644*; Quarry at end of School Street and Hillside Boulevard, *K October 7, 1963*; frontage road at northern city limits of South San Francisco, *McC, K September 11, 1964*; Crocker Industrial Park, *W June 8, 1965*; Glen Park Canyon, *McC April 16, 1967*. Perennial with slender lanceolate leaves and flowers in spikes to 3 inches long, April to October. The flowers of this species have much exerted anthers. Native of Europe.

PLUMBAGINACEAE. Plumbago Family

Limonium californicum (Boissier) Heller. Marsh Rosemary. Sea Lavender. Rare, salt flats along San Francisco Bay. Point San Bruno, *K 1047*. Perennial with a basal tuft of leaves and small purplish flowers at the ends of a branched inflorescence, July to November.

POLEMONIACEAE. Polemonium Family

Gilia achilleaefolia Benth. California Gilia. Occasional, open rocky slopes and brush covered areas. Pig Ranch Ravine, *W May 12, 1965*; Crystal Cave Canyon, *K June 20, 1965*. Erect branched annual with slender stems and blue-violet flowers, February to July.

Gilia clivorum (Jepson) V. Grant. Occasional, open rocky slopes and grassland. Crocker Hills, *K 1003*; Ridge Road near West Powerline, *K 1036*; Owl's Canyon, *K 1067*; Buckeye Canyon, *W April 2, 1967*; Crystal Cave Canyon, *K June 20, 1965*. Erect branched annual, blue-violet flowers, March to June; similar to preceding species from which it differs by its generally shorter corollas and more numerous seeds in the capsules.

Linanthus androsaceus (Benth.) Greene. Occasional, open grassy slopes, often in colonies. Colma Canyon, *Raven 1793*; Glen Park Canyon, *McC, W May 14, 1967*; Owl's Canyon, *K 1068*. Slender, attractive annual with clusters of pink to white flowers, April to July.

Navarretia squarrosa (Eschscholtz) Hooker & Arnott. Skunkweed. Occasional, dry open slopes in often hard-packed soil, sometimes in grassland. Colma Canyon, *K August 5, 1963*; Quarry, *K July 14, 1963*; Brisbane Lagoon, *W June 19, 1965*. Annual with skunk-like odor and heads of small blue flowers, June to October.

Phlox gracilis (Hooker) Greene. [*Gilia gracilis* Hooker; *Microsteris gracilis* (Hooker) Greene]. Occasional, in grassland, sometimes recurring after fire. Two ravines east of Brisbane Powerlines, *McC March 21, 1965*; Owl's Canyon, *K 1044*; Devil's Arroyo, *McC March 28, 1965*; Glen Park Canyon, *McC April 16, 1967*; Quarry, *W April 2, 1967*. Diminutive annual with small pink flowers, February to April.

POLYGONACEAE. Buckwheat Family

Chorizanthe pungens Benth. var. *hartwegii* (Benth.) Goodman. Spine-flower. Rare, sandy areas. Lower Colma Canyon, *McC June 13, 1965*. Prostrate annual with inconspicuous flowers in spiny heads, April to June.

Eriogonum latifolium Smith. Wild Buckwheat. Frequent, open rocky slopes, grassy and brushy areas. Quarry at end of School Street near Hillside Boulevard, *K October 7, 1963*; adjacent to Olivet Cemetery, *W May 18, 1965*; Randolph Avenue at Hillside Boulevard, *P 2717*; Guadalupe Road, *McC April 11, 1965*; Point San Bruno, *K September 2, 1964*; Quarry, *K July 14, 1963*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Perennial with mostly basal leaves densely hairy on lower surface and small flowers in dense heads, June to October.

Eriogonum nudum Douglas ex Benth. Rare, dry open or rocky areas. Sierra Point, *W June 21, 1965*. Similar in appearance to preceding except that stem is glabrous, flowers June to August.

Eriogonum vimineum Douglas ex Benth. Rare, rocky slopes. Canyon south of Pig Ranch Ravine, *W July 7, 1965*. Annual branched above with few flowers in small clusters, July to September.

Polygonum aviculare Linnaeus. Dooryard Knotweed. Weed of dry packed soil in disturbed areas. Crocker Avenue, *K August 5, 1963*. Prostrate annual, stems and leaves gray-green, small whitish flowers along stems, May to October. Native of Eurasia.

Polygonum paronychia Chamisso & Schlechtendal. Dune Knotweed. Rare, in sandy soil. Colma Canyon, *McC June 13, 1965*. Prostrate perennial, stems and leaves gray-green, small whitish flowers in terminal clusters, May to July.

Pterostegia drymarioides Fischer & Meyer. Occasional, on open and rocky or brushy slopes, scrambling under the adjacent shrubs. Rocky slopes below summit, *McC June 9, 1963*; Bitter Cherry Ridge, *K May 4, 1964*; South Powerline, *Menzies March 14, 1965*; Crystal Cave Canyon, *K June 20, 1965*; Colma Canyon, *K 1216*. Delicate prostrate, twining annual with tiny inconspicuous flowers, March to June.

Rumex acetosella Linnaeus. Sheep Sorrel. Weed, frequent on open and brushy areas or grassland. Glen Park Canyon, *McC April 16, 1967*; Colma Canyon, *McC, Halde, K June 23, 1963*; meadow between April Brook and Radio Road, *McC March 28, 1965*; Sierra Point, *W May 8, 1965*; south of Crocker Avenue, *P 2642*. Perennial with hastately lobed leaves and small reddish flowers in terminal panicles, March to September. Native of Eurasia.

Rumex californicus Rechinger f. California Dock. Rare, in grassland. Lower Buckeye Canyon, *K September 2, 1964*; near Bayshore Freeway, Brisbane, *W June 8, 1965*. Coarse perennial with lanceolate leaves and small greenish flowers on terminal branches, May to August.

Rumex conglomeratus Murray. Green Dock. Weed of low moist areas. Colma Canyon, *K August 5, 1963*; April Brook, *W August 16, 1965*. Tall coarse perennial. Flowers April to October. Native of Europe.

Rumex crispus Linnaeus. Curly Dock. Weed of low moist places. Ravine south of Crocker Avenue, *P 2656*; Guadalupe Road, *K August 5, 1963*; Point San Bruno, *W March 23, 1965*. Perennial with somewhat undulate leaf margins and small flowers, April to July. Native of Eurasia.

Rumex obtusifolius Linnaeus. Bitter Dock. Weed of low moist places. Guadalupe Road, *K August 5, 1963*. Stout perennial with often large leaves (to 12 inches long), small flowers, May to September. Native of Europe.

Rumex pulcher Linnaeus. Fiddle Dock. Weed of waste places. Colma Canyon, *McC*, *Halde*, *K June 23, 1963*; above Randolph Avenue at Hillside Boulevard, *P 2728*; ridge above Buckeye Canyon, *K July 14, 1963*. Perennial with divaricately branched stem, and small flowers, May to July. Native of Mediterranean Region.

Rumex transitorius Rechinger f. [*R. salicifolius* Weinmann forma *transitorius* (Rechinger f.) J. T. Howell]. Rare, in moist disturbed areas. Crocker Hills, *McC*, *K September 2, 1963*.

PORTULACACEAE. Portulaca or Purslane Family

Calandrinia ciliata (Ruiz & Pavon) DeCandolle var. *menziesii* (Hooker) Macbride. Red Maids. Occasional, open places and disturbed areas, sometimes bordering grassland. Glen Park Canyon, *McC April 16, 1967*; lower Colma Canyon, *McC*, *Halde*, *K June 23, 1963*; Flower Garden adjacent to April Brook, *McC March 28, 1965*; Pig Ranch Ravine, *W May 12, 1965*; slope above Crocker Avenue, *Toschi 63:36*. Somewhat fleshy annual with small but conspicuous magenta flowers, February to May.

Montia perfoliata (Donn ex Willdenow) Howell. Miner's Lettuce. Frequent, in moist areas and grassland. Colma Canyon, *K May 30, 1964*; Glen Park Canyon, *McC April 16, 1967*; near Nike Base, *McC*, *W April 23, 1965*; Bitter Cherry Ridge, *K May 4, 1964*; Ridge Road, *K February 28, 1965*. Glabrous annual with stem leaves opposite and connate, small white flowers, February to May.

Portulaca oleracea Linnaeus. Purslane. Weed of disturbed areas. Hillside Boulevard, *K October 7, 1963*. Prostrate, fleshy, glabrous annual with small yellow flowers, May to October. Native of Europe.

PRIMULACEAE. Primrose Family

Anagallis arvensis Linnaeus. Scarlet Pimpernel. Weed of disturbed areas and in grassland. Lower Colma Canyon, *McC*, *Halde*, *K June 23, 1963*; Sierra Point, *W April 27, 1965*; near Nike Base, *McC*, *W May 23, 1965*; West Powerline, *McC*, *K April 13, 1964*. Diffusely branched, slender annual with dainty salmon-colored flowers at most times throughout the year. Native of Europe.

Dodecatheon hendersonii Gray subsp. *cruciatum* (Greene) Thompson. Shooting Star. Occasional, on grassy slopes, but sparse at all localities on San Bruno Mountain. Radio Road, *McC*, *V. Ryder*, *February 16, 1964*; Cable Ravine, *K 865*; West Powerline, *K 951*; Glen Park Canyon, *McC April 16, 1967*. Perennial with basal rosette of leaves and flower stalk terminated by several magenta flowers, February to April. One of our most attractive early spring wildflowers. The strongly reflexed corolla lobes indicate the relationship of this genus to the European *Cyclamen* which we know as a florist's and garden plant. Ornamental.

RANUNCULACEAE. Buttercup Family

Aquilegia formosa Fischer var. *truncata* (Fischer & Meyer) Baker. Columbine. Rare, moist, partially shaded brushland, only a few plants in each locality. Bitter Cherry Ridge, *K May 4, 1964*; Columbine Gulch, *W March 28, 1965*. Attractive perennial with divided leaves and nodding salmon-red flowers, April to June. Ornamental.

Delphinium californicum Torrey & Gray. Coastal Larkspur. Occasional, moist, partially shaded brushland. Colma Canyon, *McC*, *W June 13, 1965*; Owl's Canyon, *K 1048*; Romanzoffia Ravine, *K May 4, 1964*. Perennial to 4 to 5 feet tall, racemes densely flowered, flowers dull bluish or lavender, April to July.

Delphinium decorum Fischer & Meyer. Blue Larkspur. Occasional, in grassland. Colma Canyon, *K March 15, 1964*; Bitter Cherry Ridge, *K May 4, 1964*; Owl's Canyon, *McC April 25, 1965*; grassy meadow between April Brook and Radio Road, *McC March 28, 1965*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Perennial to about 12 inches tall, with deep blue flowers, March to May. A very attractive spring wildflower.

Ranunculus californicus Bentham. California Buttercup. Frequent, in moist grassland. Slope above Parking Lot, *McC February 16, 1964*; Kamchatka Point, *McC June 9, 1963*; above Harold Avenue, Brisbane, *McC May 14, 1967*; Randolph Drive north of Hillside Boulevard, *P March 30, 1963*; near Nike Base, *McC, W May 23, 1965*. Perennial with fibrous roots, stems more or less hairy, sparsely branched, usually 1 to 2 feet tall, bright yellow flowers, February to June, smooth achenes.

Ranunculus muricatus Linnaeus. Prickle-fruited Buttercup. Weed of wet ground and seepage areas. Near Olivet Cemetery, *W May 18, 1965*; Colma Canyon, *W June 16, 1965*. Annual or perennial with fibrous roots, stems glabrous, to about 12 inches tall, yellow flowers February to June, achenes roughened with sharp points. Native of Europe.

Thalictrum polycarpum (Torrey) Watson. Meadow Rue. Occasional, in moist places on brush covered slopes. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Bitter Cherry Ridge, *K April 4, 1965*; Romanzoffia Ravine, *K May 4, 1964*. Perennial with attractive fern-like leaves, much branched panicles with dainty yellowish flowers, March to May. Ornamental.

RHAMNACEAE. Buckthorn Family

Ceanothus thyrsiflorus Eschscholtz. Blue Blossom. Frequent, on brushy slopes, seedlings sometimes appear after fire. Near West Powerline, *McC, K September 2, 1963*; Quarry, *K June 24, 1963*; Ridge Road, $\frac{1}{2}$ mile east of summit, *P 2695*. Evergreen shrub to 15 feet or more, with leaves 3-veined from base and blue flowers, March to May. Ornamental.

Rhamnus californica Eschscholtz. California Coffee Berry. Frequent, on brushy slopes. Regenerates by crown sprouts after fire. Base of mountain adjacent to Olivet Cemetery, *W May 18, 1965*; Pig Ranch Ravine, *K 1108*; above April Brook and east of Nike Base, *McC April 23, 1965*; Huckleberry Ridge, *K May 4, 1964*; Buckeye Canyon, *K July 14, 1963*; West Powerline, *McC, K September 2, 1963*; north-facing slope south of Guadalupe Parkway and west of its junction with Radio Road, *McC, W June 11, 1967*. Evergreen shrub with inconspicuous flowers, May to July, and black berries. Ornamental, especially the more compact low-growing plants.

Rhamnus crocea Nuttall. Redberry. Occasional, on brushy slopes and rocky outcrops. Ridge south of Parking Lot, *K May 4, 1964*; Guadalupe Road, *K August 5, 1963*; Colma Canyon, *McC June 13, 1965*. Small leaved, prostrate, compact, evergreen shrub with inconspicuous flowers February to May, and red berries. Ornamental.

ROSACEAE. Rose Family

Acaena californica Bitter. Frequent, grassland and rocky slopes. Above Harold Avenue, Brisbane, *McC, W May 14, 1967*; near Nike Base, *K March 15, 1964*; Flower Garden, *McC March 28, 1965*; slope below Parking Lot, *McC, Halde June 23, 1963*; South

PLATE 4. Left. *Rhamnus californica* Eschscholtz, stump sprouting after fire. →
Right. *Baeria chrysostoma* Fischer & Meyer.





FIGURE 9. *Fragaria chiloensis* (Linnaeus) Duchesne.

Powerline, *McC March 14, 1965*. Perennial with basal, pinnately divided leaves and inconspicuous flowers in clusters on flower stalks usually 12 to 18 inches tall, March to June.

Alchemilla occidentalis Nuttall ex Torrey & Gray. Western Lady's Mantle. Occasional, on rocky and brushy slopes. Because of its small size easily overlooked. South Powerline, *McC March 14, 1965*; West Powerline, *K 949*. Inconspicuous annual with tiny flowers lacking petals, February to May.

Amelanchier pallida Greene. Service Berry. June Berry. Occasional, on rocky and brushy slopes. Stump sprouts after fire. Slope just below summit, *McC June 9, 1963*; Horseshoe Ridge, *K August 5, 1963*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*; April Brook, *W June 16, 1965*. Deciduous shrub with white flowers April and May. Ornamental.

Cotoneaster pamosa Franchet. Rare, an escape from cultivation. Colma Canyon, *W June 16, 1965*. Evergreen shrub, lower leaf surface gray hairy, small pinkish flowers. June, reddish fruits later in season. Native of China.

Crataegus monogyna Jacquin. Hawthorn. Rare, an escape from cultivation. North of Crocker Avenue, *W July 7, 1965*; in eucalyptus forest, Crocker Avenue near Guadalupe Road, *K September 2, 1964*. Deciduous small tree, with lobed leaves, pink flowers in spring, red fruits later in season. Native of Europe and western Asia.

Fragaria californica Chamisso & Schlechtendal. California Strawberry. Frequent, in grassland and on brushy and rocky slopes. Growing with *Fragaria chiloensis* along Radio Road. Colma Canyon, *K March 15, 1964*; below Nike Base, *McC, W May 23, 1965*; Radio Road, *McC, W May 23, 1965*; April Brook, *McC March 28, 1965*; Cable Ravine, *McC March*

14, 1965; ravine west of Radio Road, *K 700*; Kamchatka Point, *McC May 1, 1966*; below summit in vicinity of radio station, *McC, Menzies February 16, 1963*. Attractive perennial, spreading by runners, leaves thin, dull green above and with silky hairs beneath, white flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch across, January to June, fruit edible. Ornamental.

Fragaria chiloensis (Linnaeus) Duchesne. Beach Strawberry. Occasional, in sandy and rocky areas. Radio Road, *K August 5, 1963*; ravine west of Radio Road, *K 688*; April Brook, *McC March 28, 1965*. Similar to *Fragaria californica* in habit, leaves leathery, shining and silky hairy beneath, flowers usually $\frac{3}{4}$ inch or more across, February to August, fruit edible. Ornamental, probably superior to *Fragaria californica* because of its thicker and more glossy leaves and larger flowers.

Heteromeles arbutifolia (Aiton) Roemer [*Photinia arbutifolia* (Aiton) Lindley]. Toyon. Christmas Berry. California Holly. Frequent, in chaparral and wooded ravines, or sometimes occurring as single individuals in open areas. Stump sprouts after fire. Colma Canyon, *McC June 13, 1965*; Quarry, *K June 24, 1963*; Bitter Cherry Ravine, *K 1015*; Guadalupe Road, *K 1001*; Cable Ravine, *McC March 14, 1965*. Evergreen shrub or small tree; leaves leathery, mostly glabrous, margins toothed; small white flowers in large clusters, June and July, red holly-like fruits in winter. Ornamental.

Holodiscus discolor (Pursh) Maximowicz. Cream Bush. Ocean Spray. Frequent, in chaparral and brushy areas. Stump sprouts after fire. Colma Canyon, *McC, Halde, K June 23, 1963*; Radio Road near summit of mountain, *K September 2, 1964*; Horseshoe Ridge, *K August 5, 1963*; Quarry, *K June 24, 1963*; Romanzoffia Ravine, *K 1019*; Trillium Gulch, *McC March 28, 1965*; Buckeye Canyon, *McC, W May 14, 1967*. Deciduous shrub with small white flowers in showy panicles, April to July. Ornamental.

Horkelia californica Chamisso & Schlechtendal. Occasional, in grassland. Colma Canyon, *McC June 13, 1965*; Quarry, *K July 14, 1963*; Radio Road, *McC, K September 2, 1963*; Pig Ranch Ravine, *W May 11, 1965*; slope below Parking Lot, *McC, Halde June 23, 1963*. Herbaceous perennial, leaves mostly basal, pinnately compound; stems to 2 feet or more with small white flowers, June to October. Similar in appearance to *Potentilla glandulosa* and often confused with it.

Osmaronia cerasiformis (Torrey & Gray ex Hooker & Arnott) Greene. Oso-Berry. Frequent, in chaparral and in moist wooded ravines. Stump sprouts after fire. Colma Canyon, *K March 13, 1964*; Cable Ravine near Eucalyptus grove, *McC March 14, 1965*; Quarry, *K July 14, 1963*; Devil's Arroyo, *McC March 28, 1965*; Bitter Cherry Ravine, *K 1011*; ravine near Parking Lot, *P 2701*; Buckeye Canyon, *W May 7, 1965*, and *McC April 16, 1967*. Deciduous shrub or small tree with small white flowers in nodding racemes, February to April, and fruit berry-like, red at first and black when mature. The soft wood of this shrub has the pith divided into transverse chambers. Ornamental.

Physocarpus capitatus (Pursh) Kuntze. Ninebark. Rare, on wooded slopes. Quarry, *K June 24, 1963*. Deciduous shrub with exfoliating bark, small white flowers in capitate clusters, May to June. The shrubs at this locality on San Bruno Mountain vary in height from about 7 to 8 inches to 5 feet, the taller shrubs being toward the lower part of the ravine in more protected places and the lower ones where it is more open and windswept. Ornamental.

Potentilla egedii Wormskjöld var. *grandis* (Torrey & Gray) J. T. Howell. Cinquefoil. Occasional, in seepages and other wet places. Colma Creek in Colma Canyon, *McC April 11, 1965*; Guadalupe Road, *K August 5, 1963*; Radio Road, *W May 23, 1965*. Low perennial

with runners, silvery pinnately compound leaves in basal rosettes, and yellow flowers, April to June. Ornamental for its silvery foliage and yellow flowers.

Potentilla glandulosa Lindley. Sticky Cinquefoil. Occasional, on grassy or brushy slopes. Crocker Avenue, *P* 2634; Colma Canyon, *K* 1224; Cow Trough Ravine, *K* October 7, 1963; Quarry, *K* July 7, 1963; Flower Garden, *K* 978; Devil's Arroyo, *McC* March 28, 1965; above Harold Avenue, Brisbane, *McC*, *W* May 14, 1967; slopes below summit of mountain, *McC* June 9, 1963. Herbaceous perennial with mostly basal pinnately compound leaves, stems to 2 feet or more, and small yellowish flowers, March to July. Similar in appearance to *Horkelia californica* from which it is distinguished by technical characters of flowers.

Prunus demissa (Nuttall) Walpers. Western Choke Cherry. Occasional, in chaparral and wooded ravines. Upper Colma Canyon, *K* April 11, 1965; lower Colma Canyon, *McC*, *Halde*, *K* June 23, 1963; Devil's Arroyo, *Roof* April 25, 1965; Sierra Point, *W* May 12, 1965. Deciduous shrub with small white flowers in showy racemes, April to June. Ornamental.

Prunus emarginata (Douglas) Walpers. Bitter Cherry. Rare, on brushy slopes. Stump sprouts after fire. Bitter Cherry Ridge, *K*, *Roof* May 15, 1965; Glen Park Canyon, *McC*, *W* May 14, 1967. Deciduous shrubs with small white flowers in showy umbellate clusters, April and May. Ornamental.

Prunus ilicifolia (Nuttall ex Hooker & Arnott) Walpers. Holly-leaved Cherry. Islay. Occasional, brushy and wooded ravines. Crocker Hills, *McC*, *K* September 2, 1963; Dairy Ravine, *K* August 5, 1963; Wax Myrtle Ravine, *K* August 5, 1963; between Devil's Arroyo and Buckeye Canyon, *W* June 7, 1963; Buckeye Canyon, *K* July 14, 1963; Sierra Point, *W* May 12, 1965. Evergreen shrub with holly-like leaves and small white flowers in showy racemes, March to June. Ornamental.

Rosa californica Chamisso & Schlechtendal. California Wild Rose. Occasional, on brushy areas. Stump sprouts after fire. Point San Bruno, *K* September 2, 1964; Romanzoffia Ravine, *K* May 4, 1964; Buckeye Canyon, *W* June 7, 1965. Deciduous shrub with stout flattened usually recurved prickles, attractive pink flowers in corymbs, April to October, petals usually $\frac{1}{2}$ to 1 inch long.

Rosa gymnocarpa Nuttall ex Torrey & Gray. Wood Rose. Frequent, on brushy slopes. Stump sprouts after fire. Colma Canyon, *K* May 30, 1964; Quarry, *K* June 24, 1963; Bitter Cherry Ridge, *K* May 4, 1964; Owl's Canyon, *Roof* April 25, 1965; Romanzoffia Ravine, *K* May 4, 1964; Buckeye Canyon, *W* June 7, 1965; east facing slope below Parking Lot, *McC*, *Halde* June 23, 1963. Slender-stemmed deciduous shrub with many terete mostly straight prickles, dainty pink flowers, April to September, usually solitary, petals less than $\frac{1}{2}$ inch long. Ornamental.

Rubus parviflorus Nuttall var. *velutinus* (Hooker & Arnott) Greene. Thimble Berry. Occasional, on moist brushy slopes. Stump sprouts after fire. Colma Canyon, *K* May 30, 1964; Romanzoffia Ravine, *K* May 4, 1964; Columbine Gulch, *McC* March 28, 1965; Quarry, *K* June 24, 1964. Deciduous shrub lacking prickles, leaves 5-lobed, flowers white to pink, March to August, fruit an edible red thimble-berry. Ornamental.

Rubus procerus P. J. Mueller ex Boulay. Himalaya Berry. Aggressive weedy shrub forming roadside thickets. Colma Canyon, *K* August 5, 1963; Guadalupe Road, *K* September 2, 1964; Crocker Avenue, *W* July 7, 1965. Robust, more or less evergreen, sprawling, prickly shrub, with 5 leaflets white hairy beneath, white or pink flowers, June to August, in large

terminal panicles, edible blackberries. Native of Europe. Its rampant growth makes this shrub undesirable but its berries are delicious.

Rubus spectabilis Pursh var. **franciscanus** (Rydberg) J. T. Howell. Salmon Berry. Occasional, on moist brushy slopes forming thickets. Colma Canyon, *K April 11, 1965*; ravine to west of summit of mountain, *K 692*. Deciduous shrub, young stems with prickles and 3-foliolate leaves, flowers single, red-purple, March to May, edible fruits reddish to salmon-colored. Ornamental.

Rubus ursinus Chamisso & Schlechtendal. California Blackberry. Pacific Blackberry. Frequent, forming brushy thickets by trailing on ground and over and among other shrubs. Crocker Avenue, *McC, K January 12, 1964*; Colma Canyon, *K May 30, 1964*; ravine west of Radio Road, *K 696*; near Nike Base, *McC, W May 23, 1965*; Owl's Canyon, *McC April 25, 1965*. Scandent shrub with prickles, leaves white hairy at least when young, 3-foliolate on young stems, mostly 3-lobed on flowering stems, flowers white in small clusters March to August, edible blackberries. Cultivated for its excellent edible fruits and has entered into the development of the Loganberry, the Youngberry, and the Boysenberry.

RUBIACEAE. Madder Family

Coprosma repens J. D. Hooker. Mirror Shrub. Escapes from cultivation and persists in waste places. Crocker Avenue, *McC September 24, 1967*. Evergreen shrub to 8 to 10 feet tall with shining leaves, inconspicuous flowers and orange berry-like fruits, late summer to autumn. Native of New Zealand.

Galium aparine Linnaeus. Bedstraw. Goose Grass. Cleavers. Frequent, scrambling over other plants, mostly in brushy and shaded areas. Buckeye Canyon, *McC April 16, 1967*; Colma Canyon, *K May 30, 1964*; near Nike Base, *McC, W May 23, 1965*; April Brook, *McC March 28, 1965*; ravine west of Radio Road, *K April 25, 1964*; Quarry, *K July 14, 1963*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; Reservoir Hill, *McC March 14, 1965*; Randolph Drive at Hillside Boulevard, *P 2748*; South Powerline, *McC March 14, 1965*. Weak stemmed annual with usually linear leaves more than $\frac{1}{2}$ inch long, 6 to 8 in a whorl, white flowers, March to August, dry fruits with hooked bristles. Nativity is doubtful, may be introduced from Europe.

Galium californicum Hooker & Arnott. California Bedstraw. Occasional, shaded slopes and brushy areas. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; canyon below radio towers, *W May 12, 1965*; East Powerline, *K March 21, 1965*. Perennial, stems more or less erect but intertwining and clumping together, leaves mostly ovate and longer than $\frac{1}{4}$ inch, in 4's, yellow-green flowers May to July, fruits fleshy, glabrous or hairy.

Galium nuttallii Gray. Climbing Bedstraw. Frequent, clambering over adjacent plants, mostly on dry brushy slopes. Randolph Drive at Hillside Boulevard, *P 2722*; Reservoir Hill, *McC March 14, 1964*; lower Colma Canyon, *McC, Halde, K June 23, 1963*; near Nike Base, *K 1230*; east of Brisbane Powerlines, *K 965*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Perennial, more or less woody at base, with stems to as much as 6 feet long, leaves mostly oval and less than $\frac{1}{4}$ inch long, in 4's, yellow-green flowers March to August, fruit fleshy, glabrous.

SALICACEAE. Willow Family

Salix coulteri Andersson. Coulter Willow. Occasional, streams and seepage areas. Colma Canyon, *K August 5, 1963*; junction of Colma Creek and April Brook, *K March 28, 1965*; ravine south of Crocker Avenue, *P 2640*; Crocker Industrial Park, *W October 16, 1966*;

northern South San Francisco, *McC*, *K* September 11, 1964. Small tree with entire leaves which are densely silvery hairy on lower surfaces, flowers in catkins, March to May.

Salix lasiolepis Benth. Arroyo Willow. Common, streams and seepage areas. Crown sprouts after fire. Lower Colma Canyon, *McC* March 30, 1963; Radio Road at Summer Seep, *K* 862; above the Quarry, *K* July 14, 1963; Cow Trough Ravine, *K* October 7, 1963; Devil's Arroyo, *McC* March 28, 1965; northern South San Francisco, *McC*, *K* September 11, 1964; Guadalupe Valley along a creek bank, *P* March 30, 1963. Small tree with leaves nearly entire and somewhat revolute on the margins, glaucous and more or less glabrous beneath, flowers in catkins March to May.

Salix lasiolepis and *S. coulteri* hybridize occasionally and plants apparently of hybrid origin with varying amounts of tomentum on the lower leaf surface are found in Colma Canyon and at the junction between April Brook and Colma Creek.

SAXIFRAGACEAE. Saxifrage Family

Grossularia californica (Hooker & Arnott) Coville & Britton [*Ribes californicum* Hooker & Arnott]. California Gooseberry. Hillside Gooseberry. Occasional, on shrubby or wooded areas. Seedlings appear after fire. Guadalupe Road in Crocker Hills, *K* January 15, 1964; above the Quarry, *K* July 14, 1963; Devil's Arroyo, *McC* March 28, 1965; Buckeye Canyon, *W* May 5, 1963. Deciduous shrub with nodal spines, reddish-green flowers January to April, and prickly fruits.

Grossularia divaricata (Douglas) Coville & Britton [*Ribes divaricatum* Douglas]. Rare, on shrubby slope. Colma Canyon, *K* May 4, 1964. Differs from *Grossularia californica* in its mostly greenish and rather inconspicuous flowers February to May, and fruits lacking prickles.

Grossularia leptosma Coville [*Ribes menziesii* Pursh var. *leptosmum* (Coville) Jepson]. Bay Gooseberry. Canyon Gooseberry. Buckeye Canyon, *K* August 5, 1963; above the Quarry, *K* July 14, 1963. Deciduous shrub with nodal spines, leaves glandular hairy beneath, reddish flowers March to June, and prickly fruits.

Heuchera micrantha Douglas ex Lindley. Alum Root. Occasional, shaded and brushy slopes. Bitter Cherry Ravine, *K* May 15, 1965; Quarry, *K* July 14, 1963; Romanzoffia Ravine, *K* May 4, 1964; Owl's Canyon, *K* 1051; Dairy Ravine, *K* August 5, 1963. Perennial herb with mostly basal leaves, small greenish-white flowers, May and June, having five shortly exerted stamens. Ornamental.

Lithophragma affinis Gray. Woodland Star. Occasional, in moist wooded or open rocky areas. Romanzoffia Ravine, *K* March 14, 1965; between Romanzoffia Ravine and Trillium Gulch, *K* 969; Flower Garden, *McC* March 28, 1965; Bitter Cherry Ravine, *K* April 4, 1965. Slender perennial with basal leaves and white flowers, February to May, having petals about $\frac{1}{4}$ inch long and 10 stamens.

Ribes malvaceum Smith. California Black Currant. Chaparral Currant. Rare, wooded ravine. Buckeye Canyon, *K* 944. Deciduous shrub with rose-pink flowers in racemes, October to March, fruits purple-black. The stems of the currants lack the nodal spines which are present in the gooseberries, sometimes the two are united into a single genus.

Saxifraga californica Greene. California Saxifrage. Occasional, in moist grassland or brushy or rocky areas. Colma Canyon, *K* 1247; Cable Ravine, *Menzies* March 14, 1965; Devil's Arroyo, *McC* March 28, 1965; ravine $\frac{1}{4}$ mile east of Brisbane Powerlines, *McC* March 21, 1965. Slender perennial with mostly basal leaves, flowering stems about 12 inches tall, small flowers, February to April, petals white, $\frac{1}{8}$ inch long, 10 stamens.

Tellima grandiflora (Pursh) Douglas ex Lindley. Fringe Cups. Occasional, in moist shrubby areas, seepage and stream banks. Creek bank in Colma Canyon, *McC April 11, 1965*; Romanzoffia Ravine, *K April 25, 1964*; north facing slope south of Guadalupe Parkway near junction with Radio Road, *McC, W June 11, 1967*. Stout perennial with mostly basal cordate leaves, cup-shaped flowers, March to June, petals whitish then turning red, margins lacinate or fringed, hence the common name.

SCROPHULARIACEAE. Figwort Family

Bellardia trixago (Linnaeus) Allioni. Weed of roadsides and disturbed areas. Randolph Avenue, *K May 16, 1967*; Crocker Industrial Park, Brisbane, *W June 19, 1965*; junction of Radio Road and Crocker Avenue, *W June 16, 1965*; Sierra Point, *W April 27, 1965*. Coarse annual, but attractive, weed with rose-pink and white flowers. Native of Mediterranean region.

Castilleja affinis Hooker & Arnott. Indian Paint Brush. Occasional, in brushy or open grassy and rocky areas. Randolph Drive at Hillside Boulevard, *P 2740*; near Nike Base, *McC, W May 23, 1965*; Flower Garden near April Brook, *McC February 28, 1965*. Perennial with red bracts, flowers March to September. Differs from *Castilleja franciscana* by having the lower lip of the corolla not exerted.

Castilleja franciscana Pennell. Franciscan Paint Brush. Occasional, in grassland and rocky areas. South side of Ridge Road near powerlines, *K 921*; Colma Canyon, *Raven 1775*; Guadalupe Road in Crocker Hills, *K 1098*; near Olivet Cemetery, *McC June 13, 1965*; near Cow Palace in Crocker Hills, *W May 17, 1965*. Perennial with more or less hairy but not glandular-hairy stems and leaves, and red bracts, flowers March to September, slender yellow-green lower lip of corolla much exerted.

Castilleja wightii Elmer. Wight's Paint Brush. Frequent, grassland, brushy and rocky areas. Colma Canyon, *Raven 1778*; Quarry, *K July 14, 1963*; Flower Garden near April Brook, *McC March 28, 1965*; near Nike Base, *McC, W May 23, 1965*; Trillium Gulch, *McC March 28, 1965*; slope below Parking Lot, *McC June 9, 1963*; West Powerline, *McC, K September 2, 1963*; South Powerline, *K 947*; Guadalupe Road in Crocker Hills, *K 1013*. This is the most commonly seen of the paint-brushes on San Bruno Mountain. It differs from the two preceding species in being glandular-hairy especially in the inflorescence and somewhat viscid to the touch. Its bracts are either yellow or dull reddish, flowers March to October.

Collinsia franciscana Bioletti. Chinese Houses. Occasional, in open grassy, or brushy areas. Colma Canyon, *K May 4, 1964*; Bitter Cherry Ravine, *K 1014*; Devil's Arroyo, *McC March 28, 1965*; ravine east of Brisbane Powerlines, *McC March 21, 1965*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Annual with whorls of sessile, violet-blue and whitish flowers, March to May.

Collinsia heterophylla Buist ex Graham. Chinese Houses. Rare, in shaded grassland. Buckeye Canyon, *W May 7, 1965*. Annual with whorls of sessile lavender and white flowers, April to July.

Collinsia sparsiflora Fischer & Meyer var. *solitaria* (Kellogg) Newsom. Chinese Houses. Occasional, in grassland. Ravine east of Brisbane Powerlines, *McC March 21, 1965*;

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PLATE 5. Upper. *Artemisia californica* Lessing, on slope in Owl's Canyon.
Lower. *Eschscholzia californica* Chamisso.



Owl's Canyon, *K 1069*; Buckeye Canyon, *W April 2, 1967*. Annual with mostly single small blue flowers, March to May, borne on pedicels.

Diplacus aurantiacus (Curtis) Jepson. Sticky Monkey Flower. Bush Monkey Flower. Common, in dry brushland and open areas. Regenerates by crown sprouts after fire. Cow Trough Ravine, *K October 7, 1963*; Dairy Ravine below radio tower, *K August 8, 1963*; Pig Ranch Ravine, *W May 12, 1965*; ridge above Owl's Canyon, *W June 7, 1965*; Quarry, *K June 14, 1963*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; Gladys Canyon, Brisbane, *W June 14, 1965*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Evergreen shrub with large and showy yellow-orange flowers March to July. Ornamental.

Linaria texana Scheele [*L. canadensis* (Linnaeus) Dumont de Courset var. *texana* (Scheele) Pennell]. Blue Toad Flax. Occasional, sandy soil in open areas. Colma Canyon, *K April 11, 1965*; west of Pig Ranch Ravine, *W May 11, 1965*; Manzanita Dike, *K 971*. Slender annual with violet-blue flowers, March to May, spur on the corolla. *Linaria texana* has a wide distribution outside of California, it goes northward to British Columbia and eastward to the southeastern states.

Mimulus guttatus DeCandolle. Monkey Flower. Occasional, in seepage and wet areas. Lower Colma Canyon, *McC, Halde, K June 23, 1963*; Radio Road at Summer Seep, *K 1105*; Quarry, *W June 19, 1965*; Devil's Arroyo, *McC March 28, 1967*; Glen Park Canyon, *McC April 16, 1967*; ravine north of Randolph Drive and Hillside Boulevard, *P 2744*. Perennial herb with showy bright yellow flowers, March to August.

Orthocarpus densiflorus Benth. Owl's Clover. Frequent, grassy and brushy areas. Colma Canyon, *Raven 1776*; Flower Garden, *K March 28, 1965*; April Brook, *K May 15, 1965*; near Nike Base, *W May 23, 1965*; Pig Ranch Ravine, *W May 11, 1965*; summit above Owl's Canyon, *K 1045*; Romanzoffia Ravine, *K March 13, 1965*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Annual with purple flowers in terminal clusters, March to May.

Orthocarpus erianthus Benth. var. *erianthus*. Butter-and-eggs. Johnny Tuck. Rare, in grassland. Colma Canyon, *W June 13, 1965*. Annual often forming colonies, with yellow flowers, March to May.

Orthocarpus erianthus Benth. var. *roseus* Gray. Frequent, in grassland, usually forming colonies. Ravine south of Crocker Avenue, *P 2657*; Pig Ranch Ravine, *K 1030*; Flower Garden, *K 977*; ravine west of Radio Road, *K 1244*; Crocker Industrial Park, *W March 27, 1966*. Annual with whitish flowers aging rose-pink, March to May.

Orthocarpus faucibarbatus Gray var. *albidus* (Keck) Howell. Rare, in sandy soil. Sierra Point, *W May 2, 1965*. Annual with whitish flowers, April to June.

Orthocarpus floribundus Benth. Rare, in moist grassland. Ravine north of junction of Randolph Drive and Hillside Boulevard, *P 2734*; Point San Bruno, *K April 25, 1965*. Annual with whitish flowers, April and May. *Orthocarpus floribundus* occurs only in Marin, San Francisco and San Mateo counties.

Orthocarpus purpurascens Benth. var. *latifolius* Watson. Escobita. Frequent, in grassland and open fields. Quarry, *K June 24, 1963*; Colma Canyon, *McC June 13, 1965*; near Nike Base, *K 1234*; Radio Road, *K August 5, 1963*; slope below Parking Lot, *McC June 9, 1963*; Kamchatka Point, *K May 15, 1965*; Ridge Road near West Powerline, *K 968*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Annual, stems and leaves hairy, stems usually purplish and branched, flowers purplish March to May.

Orthocarpus pusillus Benth. Occasional, in open and grassy areas, sometimes in hard packed soil and then somewhat depauperate. West Powerline, *K 876*; Glen Park Canyon, *McC April 16, 1967*. Small slender annual with foliage brownish tinged, tiny inconspicuous flowers, April and May.

Scrophularia californica Chamisso & Schlechtendal. California Bee Plant. Frequent, in brushland and bordering it. Lower Colma Canyon, *McC July 18, 1967*; Quarry, *McC August 1, 1965*; east facing slope below Parking Lot, *McC April 17, 1964*; West Powerline, *McC March 28, 1965*. Coarse perennial to as much as 5 to 6 feet tall with small insignificant reddish-brown flowers February to July. Tends to become weedy.

Veronica americana (Rafinesque) Schweinitz ex Benth. American Brooklime. Occasional, in seepages and other wet areas. Colma Canyon, *W June 16, 1965*; north facing slope south of Guadalupe Parkway, *McC, W June 11, 1967*; west of Radio Road, *K June 20, 1965*; canyon east of Quarry, *W June 8, 1965*; April Brook, *W May 18, 1965*. Erect perennial with small bright blue flowers, May to October.

Veronica persica Poir. Rare, in disturbed sandy soil. Lower Colma Canyon, *McC, K, Kasapliligil July 18, 1967*. Procumbent annual with small blue flowers, March to September. Native of Eurasia.

SOLANACEAE. Nightshade Family

Solanum furcatum Dunal. Nightshade. Weed in disturbed areas. Crocker Hills, *McC, K September 2, 1963*; Pig Ranch Ravine, *W May 11, 1965*; adjacent to Olivet Cemetery, *W May 18, 1965*; on summit near Parking Lot, *McC, Halde June 23, 1963*. Weak-stemmed, straggling perennial, with insignificant white to pale lavender flowers April to October, corolla about $\frac{3}{8}$ inch or more across. Native of South America.

Solanum nodiflorum Jacquin [has been called *S. nigrum* by some authors but it is not *S. nigrum* Linnaeus]. Nightshade. Weed in disturbed areas. Guadalupe Road, *K August 5, 1963*; Wax Myrtle Ravine, *K August 5, 1963*; near Olivet Cemetery, *W August 18, 1965*. Weak stemmed straggling annual or perennial, with small insignificant pale lavender or whitish flowers, March to December, corolla about $\frac{1}{4}$ inch across. Nativity uncertain, but it is probably South America.

Solanum umbelliferum Eschscholtz. Blue Witch. Frequent, on brushy slopes. Slopes southeast of 1314-foot summit, *P 2678*; Quarry, *K June 24, 1963*; South Powerline, *Menzies March 14, 1965*. Subshrub, more or less rounded in habit, hairy, with blue flowers January to September.

TROPAEOLACEAE. Tropaeolum Family

Tropaeolum majus Linnaeus. Garden Nasturtium. Escape from cultivation and persisting in waste places. Crocker Avenue, *McC September 24, 1967*. Trailing annual or perennial with peltate leaves and attractive yellow-red flowers during most of the year. Native of South America

UMBELLIFERAE. Carrot or Parsley Family

Angelica hendersonii Coulter & Rose. Occasional, in brushland. Regenerates after fire by sprouting from rootstocks. Quarry, *K July 14, 1963*; Romanzofilia Ravine, *McC March 28, 1965*. Also in Colma Canyon. Stout perennial to 3 to 4 feet tall with large pinnately compound leaves, each leaflet more or less ovate and pinnately veined, white flowers April

FIGURE 10. *Heracleum maximum* Bartram.

to July. Superficially resembles *Heracleum maximum* but may be distinguished by the shape of the leaves.

Anthriscus caucalis Bieberstein [*A. scandicina* (Weber) Mansfeld]. Bur-chervil. Weed of disturbed areas. Guadalupe Road, *K August 5, 1963*; Sierra Point, *W May 12, 1965*. Annual or biennial with finely divided leaves, small white flowers April to June, and fruits with little hooks. Native of Europe.

Apiastrum angustifolium Nuttall. Wild Celery. Rare, in sandy soil. Pig Ranch Ravine, *K 1200*. Annual with finely divided leaves, small white flowers February to May, and fruits with inconspicuous ribs.

Bowlesia incana Ruiz & Pavon. Occasional, in grassy and brushy areas. Devil's Arroyo, *K 1099*; Trillium Gulch, *K 1107*. Delicate, weakly trailing, prostrate annual with tiny inconspicuous flowers, March to May. Superficially resembles *Pterostegia drymarioides*, another weakly trailing annual.

Caucalis microcarpa Hooker & Arnott. California Hedge Parsley. Rare, on open grassy slopes. South Powerline, *K 1215*. Hispid annual, leaves finely divided, flowers small, white, April to June, and fruits with numerous hooks.

Conium maculatum Linnaeus. Poison Hemlock. Spotted Hemlock. Weed of disturbed areas. Crocker Hills, *McC, K September 2, 1963*. Also in upper Colma Canyon. Tall biennial, stems purple spotted, leaves pinnately divided, flowers white, small, April to August, fruits with prominent ribs.

Native of Europe. The plant is poisonous, more so when fresh than when dry, and by it "criminals and philosophers were put to death at Athens." It was said to have been used to execute Socrates.

Daucus pusillus Michaux. Rattlesnake Weed. Common, in grassland. Quarry, *K July 14, 1963*; Devil's Arroyo, *K April 25, 1965*; Guadalupe Road, *McC April 11, 1965*; Radio Road in eucalyptus area, *McC, W June 11, 1967*; Nike Base, *K April 25, 1964*; Colma Canyon, *McC June 13, 1965*. Annual, leaves finely divided, flowers small white or pinkish, April to June, fruits with stout hooks.

Foeniculum vulgare Miller. Sweet Fennel. Weed in disturbed areas. Guadalupe Road, *K August 5, 1963*; Brisbane Lagoon, *W August 14, 1965*. Biennial or perennial with anise-like odor, leaf divisions linear, flowers yellow, May to October, fruits smooth, angled. Native of Europe where cultivated edible forms have been selected and used as a vegetable especially in Italy.

Heracleum maximum Bartram [*H. lanatum* Michaux]. Cow Parsnip. Occasional, on open slopes and in bases of ravines. Romanzoffia Ravine, *K May 4, 1964*; top of mountain near radio station, *McC, Menzies February 16, 1963*; Crocker Avenue, *P 2660*; southwest of Brisbane, *P 2761*; Colma Canyon, *K May 30, 1964*. Stout coarse perennial, to 5 to 6 feet tall, leaves ternately lobed with broad leaflets palmately veined and lobed, flowers white in large flat-topped clusters April to July, fruits with narrow wings. See *Angelica*.

Ligusticum apiifolium (Nuttall) Gray. Lovage. Occasional, on open and exposed grassy or brushy areas. Sometimes root sprouts after fire. Quarry, *K June 24, 1963*; Kamchatka Point, *McC March 21, 1965*; Nike Base, *K 690*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; West Powerline, *McC March 28, 1965*. Perennial, leaves pinnately divided, flowers whitish, April to June, turning rusty in age, fruits smooth but ribbed.

Lomatium caruifolium (Hooker & Arnott) Coulter & Rose. Alkali Parsnip. Occasional, in grassy areas. Radio Road, *McC, Ryder February 16, 1964*; Randolph Drive at Hillside Boulevard, *P 2731*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Acaulescent perennial with ternately divided leaves, yellow flowers, March and April, fruits broadly winged.

Lomatium dasycarpum (Torrey & Gray) Coulter & Rose. Lace Parsnip. Frequent, in grassy and rocky areas. Colma Canyon, *Raven 1789*; ravine north of Randolph Avenue at Hillside Boulevard, *P 2745*; ravine south of Crocker Avenue, *P 2647*; Quarry, *K July 14, 1963*; top of mountain on slope above Parking Lot, *McC, Ryder February 16, 1964*; Radio Road near radio station, *McC, Menzies February 16, 1963*; Guadalupe Road, *McC April 11, 1965*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*. Perennial differing from *L. caruifolium* by its woolly fruits.

Lomatium utriculatum (Nuttall) Coulter & Rose. Bladder Parsnip. Occasional, on open grassy slopes and ridges. Radio Road near radio station, *McC, Menzies February 16, 1963*; Reservoir Hill north of Colma Canyon, *K 878*; Cable Ravine, *McC March 14, 1965*; Brisbane Powerlines, *K 954*; Guadalupe Road in Crocker Hills, *K April 11, 1965*; meadow between April Brook and Radio Road, *McC March 28, 1965*. Perennial, differs from two previous species by the thin wings of the fruit being broader than the main body of the fruit.

Oenanthe sarmentosa Presl. Occasional, in sluggish streams and marshy areas. Colma Canyon, *K August 5, 1963*; Pig Ranch Ravine, *K May 30, 1964*; Guadalupe Creek, *K April 11, 1965*; April Brook, *K 982*. Perennial with pinnately compound leaves, each leaflet toothed or lobed, white flowers May to October, fruits with corky ribs.

Sanicula arctopoides Hooker & Arnott. Footsteps-of-spring. Yellow mats. Snake-root. Common, on open grassy slopes and windswept ridges. Above Harold Avenue, Brisbane, *McC, W May 14, 1967*; Radio Road, *McC, Ryder February 16, 1964*; Cable Ravine, *McC*

March 28, 1965; meadow between April Brook and Radio Road, *McC March 28, 1965*; Radio Road near radio station, *McC, Menzies February 16, 1963*; Kamchatka Point, *McC May 1, 1966*; Crocker Avenue, *P 2646*. One of the mountain's colorful spring wildflowers. Prostrate perennial, entire plant a chartreuse-yellow color when in flower, flowers small, in rounded clusters, February to May, surrounded by conspicuous bracts, seeds with few hooks.

Sanicula bipinnatifida Douglas ex Hooker. Purple Sanicle. Occasional, in grassland and open slopes. Above Harold Avenue, Brisbane, *McC, W May 14, 1967*; Owl's Canyon, *K 1065*; Randolph Avenue, *P 2726*. Stout perennial with pinnately compound leaves, usually purple flowers in a tight head without bracts, February to May, seeds with hooks.

Sanicula crassicaulis Poeppig ex DeCandolle. Pacific Sanicle. Common, on open or shaded and wooded slopes. Colma Canyon, *K1220*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; west facing slope below mountain summit, *K 694*; Quarry, *K July 14, 1963*; West Powerline, *K 707*; Trillium Gulch, *K 1020*; Owl's Canyon, *K 1050*; Bitter Cherry Ridge, *K April 15, 1965*. Perennial with palmately lobed leaves, yellow flowers in tight heads with tiny bracts, February to June, seeds with hooks.

Sanicula laciniata Hooker & Arnott. Coast Sanicle. Rare, on open exposed slope. Below top of mountain near Parking Lot, *McC June 9, 1963*. Perennial with palmately lobed leaves, leaf divisions laciniate, flowers yellow in tight heads with small bracts, April to June, seeds with hooks.

URTICACEAE. Nettle Family

Soleirolia soleirolii (Requien) Dandy. [*Helxine soleirolii* Requien]. Baby's Tears. Weed in shaded disturbed areas. Crocker Avenue under Monterey cypress, *K September 2, 1964*. Delicate creeping mat-forming perennial with inconspicuous flowers during most of the year. Native of Corsica and Sardinia.

Hesperocnide tenella Torrey. Rare, in moist shaded areas. Colma Canyon, *McC, Halde, K June 23, 1963*. Weak-stemmed but erect annual with stinging hairs and inconspicuous flowers, March to May. Nettle-like in appearance.

Urtica holosericea Nuttall. Nettle. Rare, along banks of creeks. Buckeye Canyon, *K 725*; Guadalupe Creek, *McC, K September 11, 1964*. Stout coarse perennial with stinging hairs and inconspicuous flowers, May to October.

VALERIANACEAE. Valerian Family

Centranthus ruber (Linnaeus) DeCandolle. Jupiter's Beard. Red Valerian. Weed in disturbed ground. Brisbane Lagoon, *W August 14, 1965*. Attractive perennial with white, pink, and rose-pink flowers from late winter into autumn. A garden plant which escapes from cultivation. Native of the Mediterranean region.

Plectritis congesta (Lindley) DeCandolle. Occasional, in grassland and moist brushy areas, sometimes forms small colonies. Meadow between Radio Road and April Brook, *McC March 28, 1965*; Romanzoffia Ravine, *K April 24, 1964*; Devil's Arroyo, *McC March 28, 1965*; Owl's Canyon, *K 1095*; Glen Park Canyon, *McC April 16, 1967*. Annual with small pink flowers, February to May, in spike-like inflorescences.

VIOLACEAE. Violet Family

Viola adunca Smith. Blue Violet. Frequent, in grassland. Colma Canyon, *K March 15, 1964*; Flower Garden adjacent to April Brook, *K 978*; Cable Ravine, *McC March 14,*

1965; west facing slope below top of mountain, *McC April 17, 1964*. Low growing perennial with violet flowers, February to April. This attractive violet resembles the cultivated English violet of gardens.

Viola pedunculata Torrey & Gray. Johnny-Jump-Up. California Golden Violet. Frequent, in grassland. Point San Bruno, *K 1026*; Randolph Drive at Hillside Boulevard, *P 2716*; Glen Park Canyon, *McC April 16, 1967*; above Harold Avenue, Brisbane, *McC, W May 14, 1967*; Cable Ravine, *McC March 14, 1965*; Flower Garden, *McC March 28, 1965*; ridge above Great Meadow, *W June 20, 1965*. Perennial with yellow flowers, March and April, the two upper petals are marked with red-brown on the back. An attractive spring wildflower.

SUBCLASS MONOCOTYLEDONEAE

ARACEAE. Calla Family

Zantedeschia aethiopica (Linnaeus) Sprengel. Calla. Calla-Lily. An escape from cultivation in damp sandy soil. Pig Ranch Ravine, *K April 25, 1965*; *W May 14, 1965*. Native of South Africa.

CYPERACEAE. Sedge Family

Carex barbarae Dewey. Occasional, wet grassy ground. Colma Canyon, *McC, K June 23, 1963*; Radio Road, *W May 23, 1965*; north city limits of South San Francisco in seepage area with *Salix coulteri* and *S. lasiolepis*, *McC, K September 11, 1964*.

Carex brevicaulis Mackenzie. Rare, on exposed slopes. *J. T. Howell 13774*.

Carex densa (Bailey) Bailey. Rare, in seepages. Crocker Hills, *K May 4, 1964*.

Carex obnupta Bailey. Rare, wet ravines. Crystal Cave Canyon, *W June 19, 1965*; Cow Trough Ravine, *K October 7, 1963*.

Carex subbracteata Mackenzie. Rare, in wet ravine. Crystal Cave Canyon, *K June 20, 1965*.

Carex tumulicola Mackenzie. Rare, on grassy slope. Olivet Cemetery, *W May 18, 1965*.

Cyperus eragrostis Lamarck. Occasional, in marshy places and roadside ditches. Buckeye Canyon, *K September 2, 1964*; Cow Trough Ravine, *K October 7, 1963*; Crocker Avenue, *K August 5, 1963*; Crocker Hills, *K October 4, 1966*; Crocker Industrial Park, Brisbane, *W June 19, 1965*; Sierra Point, *W May 8, 1965*.

Scirpus californicus (C. A. Meyer) Steudel. California Tule. Rare, in marsh, growing with cattails. Near Bayshore Freeway, *K October 4, 1966*.

Scirpus cernuus Vahl var. *californicus* (Torrey) Beetle. Rare. Edge of creek in Colma Canyon, *K May 30, 1964*.

Scirpus microcarpus Presl. Rare, in wet and marshy places. Meadow adjacent to April Brook, *W May 18, 1965*; Colma Canyon, *K May 30, 1964*.

Scirpus robustus Pursh. Rare. Moist roadside ditch. Crocker Hills, *K 2047*.

GRAMINEAE. Grass Family

Agrostis diegoensis Vasey. Rare, open grassy slope. Near Quarry, *W June 8, 1965*.

Agrostis exarata Trinius. Rare, in low moist places. Pig Ranch Ravine, *W May 11, 1965*.

Agrostis hallii Vasey. Occasional, on brushy slopes. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; Quarry, *K July 14, 1963*; Crystal Cave Canyon, *W June 19, 1965*.

Agrostis semiverticillata (Forsk.) C. Christensen. Moist disturbed ground. Crocker Industrial Park, Brisbane, *W June 8, 1965*. Introduced from Europe and Asia.

Aira caryophyllea Linnaeus. Silvery Hair Grass. Delicate graceful annual. Well distributed on grassy or brushy slopes. Crocker Hills, near Cow Palace, *W May 17, 1965*; Devil's Arroyo, *K May 9, 1965*; near Nike Station, *McC, W May 23, 1965*; Owl's Canyon, *K April 25, 1965*; Pig Ranch Ravine, *W May 11, 1965*; east facing slope below Parking Lot, *McC, Halde June 9, 1963*; south of West Powerline, *K March 14, 1965*. Introduced from Europe.

Avena barbata Brotero. Slender Wild Oat. Weed of waste places and grassy slopes. Colma Canyon, *McC, Halde, K June 23, 1963*; Crocker Avenue, *Toschi February 23, 1963*; Quarry, *K July 14, 1963*. Native to Mediterranean region.

Briza maxima Linnaeus. Rattlesnake Grass. Big Quaking Grass. Attractive weedy grass of waste ground. Sierra Point, *W April 27, 1965*. Introduced from Europe.

Briza minor Linnaeus. Little Quaking Grass. Occasional, on grassy areas and waste ground. Guadalupe Valley, *P March 30, 1963*; near Olivet Cemetery, *McC June 13, 1965*; Colma Canyon, *McC, Halde, K June 23, 1963*; Pig Ranch Ravine, *W May 11, 1965*; Romanzoffia Ravine, *K May 4, 1964*; Point San Bruno, *K 1027*. Introduced from Europe.

Bromus carinatus Hooker & Arnott. Common, on exposed or shaded habitats. Plants mostly biennial. Randolph Ravine, *P 2711*; Colma Canyon, *K March 15, 1964*; near Nike Base, *K April 25, 1964*; *McC, W May 23, 1965*; Radio Road, below radio stations, *Toschi March 3, 1963*; Owl's Canyon, *K April 25, 1965*.

Bromus diandrus Roth [*B. rigidus* sensu auct. Amer.]. Rare, in disturbed soil. Guadalupe Valley, *P 2765a*. Introduced from Europe.

Bromus marginatus Nees von Esenbeck. Occasional, open grassy slopes. North facing slope above Crocker Avenue, *Toschi 63:29*; West Powerline, *K April 13, 1964*; Owl's Canyon, *K 1052*.

Bromus mollis Linnaeus. Soft Chess. Occasional, waste places and in grassland. West Powerline, *K April 13, 1964*; Pig Ranch Ravine, *K May 15, 1965*; Colma Canyon, *W July 7, 1965*; Sierra Point, *W April 27, 1965*. Introduced from Europe.

Bromus rubens Linnaeus. Foxtail Chess. Rare, in disturbed dry soil. Pig Ranch Ravine, *K May 15, 1965*; Sierra Point, *W May 8, 1965*. Introduced from Europe.

Calamagrostis nutkaensis (Presl) Steudel. Large clumping perennial, occasional, near summit of mountain. Colma Canyon, *McC, Halde, K June 23, 1963*; Dairy Ravine, *K August 5, 1963*; east facing slope below Parking Lot, *McC June 9, 1963*.

Cortaderia selloana (Schultes) Ascherson & Graebner. Pampas Grass. Tall perennial planted as an ornamental but occasionally naturalized. Brisbane Lagoon, *W August 14, 1965*. Native of South America.

Danthonia californica Bolander. Rare, open brushy or grassy slopes. East facing slope below Parking Lot, *McC June 9, 1963*; Crocker Hills, *K May 4, 1964*.

Deschampsia caespitosa (Linnaeus) Beauvois subsp. **holciformis** (Presl) Lawrence. California Hair Grass. Rare, clumps on grassy slopes, a tufted perennial. Crocker Hills, *K May 4, 1964*.

Distichlis spicata (Linnaeus) Greene. Salt Grass. Rare. Salt marsh near edge of bay. Brisbane Lagoon, *W August 14, 1965*.

Elymus glaucus Buckley. Blue Wild Rye. Western Rye Grass. Common, in grassland and on brushy hillsides. East facing slope below Parking Lot, *McC, Halde June 23, 1963*; upper Buckeye Canyon, *K July 14, 1963*; Bitter Cherry Ridge, *K May 15, 1965*; Quarry, *W June 17, 1965*.

Elymus triticoides Buckley. Rare, disturbed areas. Brisbane Lagoon, *W August 14, 1965*.

Festuca californica Vasey. Tall clumping perennial. Frequent, on somewhat shaded brushy hillsides. Colma Canyon, *K May 4, 1964*; Bitter Cherry Ridge, *K May 4, 1964*; near Parking Lot, *McC April 17, 1964*; Romanzoffia Ravine, *K May 4, 1964*; Owl's Canyon, *K April 25, 1965*.

Festuca dertonensis (Allioni) Ascherson & Graebner. Common, on brushy and grassy slopes or flats. Near Crocker Avenue, *P 2648*; Randolph Ravine, *P 2712*; slope above Parking Lot, *McC April 17, 1964*; Ridge Road, $\frac{1}{2}$ mile east of Parking Lot, *P 2694*. Introduced from Europe.

Festuca idahoensis Elmer. Blue Bunch Grass. Rare, rocky grassy slope at summit of mountain. East facing slope below Parking Lot, *McC, Halde June 23, 1964*.

Festuca megalura Nuttall. Occasional, mostly in disturbed areas, sometimes on grassy slopes. Crystal Cave Canyon, *K June 20, 1965*; ridge southwest of Brisbane, *P 2756*; near Nike Station, *McC, W May 23, 1965*; Sierra Point, *W April 27, 1965*.

Festuca myuros Linnaeus. Weed, in disturbed areas and grassy slopes. Ravine $\frac{1}{2}$ mile east of Parking Lot, *P March 9, 1963*; Crystal Cave Canyon, *K June 20, 1965*. Introduced from Europe.

Festuca rubra Linnaeus. Rare, on brushy slope below summit. Near Parking Lot, *McC June 9, 1963*.

Holcus lanatus Linnaeus. Velvet Grass. Occasional, moist places and grassy slopes. Lower part of Colma Canyon, *McC, Halde, K June 23, 1963*; Crocker Avenue, *K September 2, 1964*; Crocker Industrial Park, Brisbane, *W June 8, 1965*. Introduced from Europe.

Hordeum brachyantherum Nevski. Meadow Barley. Rare, in grassland and brushy areas. Crocker Hills, *W May 17, 1965*; Randolph Avenue, at Hillside Boulevard, *P 2733*.

Hordeum geniculatum Allioni [*H. hystrix* Roth]. Mediterranean Barley. Rare, in grassland, Crocker Hills near Cow Palace, *W May 17, 1965*. Introduced from Europe.

Hordeum leporinum Link. Farmer's Foxtail. Disturbed or grassy areas. Guadalupe Valley, *P 2765*; Randolph Avenue at Hillside Boulevard, *P 2741*; West Powerline, *K April 13, 1964*; Colma Canyon, *W August 16, 1965*. Introduced from southern Europe.

Koeleria macrantha (Ledebour) Sprengel [*K. gracilis* Persoon; *K. cristata* (Linnaeus) Persoon]. June Grass. Frequent, on brushy and often rocky slopes. Sierra Point, *W April 27, 1965*; near Nike Station, *McC, W May 23, 1965*; upper Buckeye Canyon, *K July 14, 1963*; Owl's Canyon, *K 1053*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*.

Lolium multiflorum Lamarck. Italian Rye Grass. Occasional, in waste places and grassy slopes and flats. Lower part of Colma Canyon, *McC, Halde, K June 23, 1963*; Guadalupe Road, *K August 5, 1963*. Introduced from Europe.

Melica californica Scribner. Occasional, in grassland. Ridge southwest of Brisbane, *P 2754*; Randolph Avenue at Hillside Boulevard, *P 2720*; near Olivet Cemetery, *W May 18, 1965*; Owl's Canyon, *K April 25, 1965*; Pig Ranch Ravine, *K May 15, 1965*.

Melica imperfecta Trinius. Delicate perennial. Rare. Brushy slope, Colma Canyon, *K May 30, 1964*.

Melica torreyana Scribner. Frequent, on brushy slopes and grassland. Near Olivet Cemetery, *W May 18, 1965*; Huckleberry Ridge, *K May 4, 1964*; Owl's Canyon, *K April 25, 1965*; Buckeye Canyon, *K May 24, 1966*; slope southeast of summit, *P 2676*; West Powerline, *McC March 14, 1965*.

Panicum capillare Linnaeus. Witch Grass. Rare. Disturbed area, Brisbane Lagoon, *W June 19, 1965*. Introduced from eastern North America.

Parapholis incurva (Linnaeus) C. E. Hubbard. Sickie Grass. Rare. Salt flat, Sierra Point, *W May 8, 1965*. Native of Europe.

Phalaris californica Hooker & Arnott. California Canary Grass. Common, in moist areas and on grassy ridges. Randolph Avenue at Hillside Boulevard, *P 2737*; Colma Canyon, *K May 30, 1964*; Quarry, *K July 14, 1963*; Bitter Cherry Ridge, *K May 4, 1964*; Crystal Cave Canyon, *K June 20, 1965*; Pig Ranch Ravine, *K May 15, 1965*.

Phalaris canariensis Linnaeus. Canary Grass. Rare. Disturbed ground. Brisbane Lagoon, *W June 19, 1965*. Introduced from Europe. Used in bird-seed mixtures.

Poa annua Linnaeus. Annual Bluegrass. Occasional, in grassland. Randolph Avenue, *K May 16, 1967*; Crocker Avenue between Templeton Avenue and Scenic Way, *J. H. Thomas May 2, 1967*.

Poa pratensis Linnaeus. Kentucky Blue-Grass. Disturbed area along Radio Road, *W May 23, 1965*. Probably introduced from Europe and often used in lawn grass mixtures.

Poa unilateralis Scribner. Occasional, open grassy or rocky slopes. Ridge southwest of Brisbane, *P 2755*; east facing slope below Parking Lot, *McC April 17, 1964*; Owl's Canyon, *K April 25, 1965*; Brisbane Powerlines, *K March 21, 1965*.

Polypogon monspeliensis (Linnaeus) Desfontaines. Rabbit-foot Grass. Occasional, in wet or damp areas. Point San Bruno, *McC, K June 8, 1965*; Sierra Point, *W May 8, 1965*; Crocker Industrial Park, *W June 15, 1965*; lower Colma Canyon, *McC, Halde, K June 23, 1963*. Introduced from Europe.

Secale cereale Linnaeus. Cereal Rye. Rare. Disturbed ground, Point San Bruno, *K 1038*. Tufted annual, frequently cultivated and becoming naturalized. Native of south-west Asia.

Sitanion jubatum J. G. Smith. Big Squirrel-tail Grass. Rare, dry open often rocky places or waste places. Sierra Point, *W June 20, 1965*; Brisbane Ravine, *W May 25, 1965*.

Sorghum halepense (Linnaeus) Persoon. Johnson Grass. Rare. Disturbed ground, Point San Bruno, *W June 19, 1965*. Native of Mediterranean region.

Stipa cernua Stebbins & Love. Rare. Rocky grassland. Pig Ranch Ravine, *K May 15, 1965*.

Stipa lepida Hitchcock. Rare. Rocky open grassland, *Raven 1783*; near Olivet Cemetery, *W May 18, 1965*.

Stipa pulchra Hitchcock. Rare, grassland and rocky slopes. Randolph Avenue, at Hillside Boulevard, *P 2613*; slope southeast of summit, *P 2670*.

Triticum aestivum Linnaeus. Wheat. Spontaneous in waste places, may not persist. Point San Bruno, *K 1037*; Brisbane Lagoon, *W June 19, 1965*. Widely cultivated, introduced from Old World.

IRIDACEAE. Iris Family

Chasmanthe aethiopica (Linnaeus) N. E. Brown [*Antholyza aethiopica* Linnaeus]. Head of Buckeye Canyon, persisting. Planted in 1965 by Philip Wheeler. Native of South Africa.

Freesia refracta Klatt. Freesia. Slope below radio station on Radio Road. *Toschi 63:64*. Native of South Africa.

Iris douglasiana Herbert. Douglas Iris. Frequent, open grassland and meadows. Point San Bruno, *K March 16, 1964*; Colma Canyon, *McC, Halde, K June 23, 1963*; Nike Base, *K March 15, 1964*; Meadow between April Brook and Radio Road, *McC March 28, 1965*; Cable Ravine, *McC March 14, 1965*; Horseshoe Ridge, *K August 5, 1963*; Pig Ranch Ravine, *W August 11, 1965*. Showy flowers in various shades of cream-white to blue, March to May. Ornamental.

Iris longipetala Herbert. Frequent, open grassland and meadows. Occurs in same habitat as preceding iris and in at least one locality (the Flower Garden) the two are growing together. Colma Canyon, *K 508*; near Crocker Avenue, *P 2655*; north of Randolph Drive at Hillside Boulevard, *P 2707*; Point San Bruno, *K March 16, 1964*; east end of ridge near Brisbane Powerlines, *K 956*. Flowers in various shades of blue, April and May. Petals to 3 inches long, often longer than petals of Douglas Iris. In the absence of flowers the two irises may be distinguished by their leaves which in *Iris douglasiana* are dark green and shining on upper surface and dull grayish-green on lower surface while in *I. longipetala* the leaves have the same color on both surfaces.

Sisyrinchium bellum Watson. California Blue-eyed Grass. Widely distributed, open grassland. Colma Canyon, *McC, Halde, K June 23, 1963*; east facing slope below Parking Lot, *McC April 17, 1964*; Cable Ravine, *McC March 14, 1965*; Manzanita Dike, *K 932*; Olivet Cemetery, *McC June 13, 1965*; Sierra Point, *W May 21, 1965*; north of Randolph Drive at Hillside Boulevard, *P 2705*; Glen Park Canyon, *McC April 16, 1967*.

Sisyrinchium californicum (Ker) Dryander. Yellow-eyed Grass. Rare, in boggy places or edge of water. Colma Creek, in water, *W June 15, 1965*.

Tritonia crocosmaeflora Lemoine. Montbretia. Rare, an escape from cultivation. In shade of eucalyptus trees, Radio Road, *McC September 24, 1967*. Perennial, growing from a corm, 3 to 4 feet tall, sword-shaped leaves, showy orange flowers, August and September. A garden hybrid between two South African plants, *T. pottsii* Baker and *T. aurea* Planchon.

JUNCACEAE. Rush Family

Juncus balticus Willdenow. Baltic Rush. Rare. Salt flat, Point San Bruno, *K*, *McC*, September 11, 1964.

Juncus bufonius Linnaeus. Toad Rush. Occasional, in wet places or seepage areas. Quarry, *K* July 7, 1963; Colma Canyon, *K* May 30, 1964; between Nike Base and April Brook, *McC*, *W* May 23, 1965; Point San Bruno, *K* 10-40.

Juncus effusus Linnaeus var. **brunneus** Engelm. Bog Rush. Occasional, in wet places. Lower Colma Canyon, *McC*, *Halde*, *K* June 23, 1963; Quarry, *K* July 14, 1963; Buckeye Canyon, *K* September 2, 1964; Crocker Avenue, *K* August 5, 1963.

Juncus leseurii Bolander. Salt Rush. Rare, wet places, in both fresh water and salt flats. Creek in lower Buckeye Canyon, *K* September 2, 1964; Point San Bruno, *K* September 11, 1964.

Juncus mexicanus Willdenow. Mexican Rush. Rare. Dry ground, Point San Bruno, *K* September 11, 1964.

Juncus occidentalis (Coville) Wiegand [*J. tenuis* Willdenow var. *congestus* Engelm.]. Western Rush. Rare. Sierra Point, *W* May 8, 1965.

Juncus phaeocephalus Engelm. Rare. Sierra Point, *W* May 8, 1965; north facing brushy slope south of Guadalupe Parkway and near its junction with Radio Road, *McC*, *W* June 11, 1967.

Juncus xiphioides E. Meyer. Rare. Sierra Point, *W* May 8, 1965.

Luzula multiflora (Retzius) Lejeune [*L. subsessilis* (Watson) Buchenau]. Wood Rush. Common, in grassland and seepage areas. Bitter Cherry Ridge, *K* April 4, 1965; Radio Road below transmitting towers, *McC*, *Menzies* February 16, 1963; east facing slope below Parking Lot, *McC* March 17, 1964; Crocker Hills, *K* January 8, 1964; Crystal Cave Canyon, *K* June 20, 1965; Randolph Drive at Hillside Boulevard, *P* 2677; Glen Park Canyon, *McC* April 16, 1967; Sierra Point, *W* May 8, 1965.

JUNCAGINACEAE. Arrowgrass Family

Triglochin concinna Davy. Slender Arrowgrass. Rare. Salt flat, Point San Bruno, *K* 1084.

LEMNACEAE. Duckweed Family

Lemna minima Philippi. Duckweed. Rare, floating in water. Cow Trough Ravine, *K* October 23, 1963; April Brook, *K* June 20, 1965; Crocker Hills, in a marsh between Geneva Avenue and Guadalupe Parkway, *K* October 4, 1966.

LILIACEAE. Lily Family

Allium dichlamydeum Greene. Coastal Onion. Occasional, grassland and rocky slopes. Colma Canyon, *McC*, *Halde*, *K* June 23, 1963; Bitter Cherry Ridge, *K* 1094; near Nike Base, *McC* May 23, 1965; Flower Garden, *W* June 20, 1965; east facing slope below Parking Lot, *McC*, *Halde* June 23, 1963; Sierra Point, *W* May 8, 1965. Attractive rose-purple flowers, May and June. Ornamental.

Allium triquetrum Linnaeus. A weed in gardens and disturbed places. Crocker Industrial Park, *W* March 27, 1966. Native of southern Europe.



FIGURE 11. *Allium dichlamydeum* Greene.

Allium unifolium Kellogg. Rare, in moist areas. Colma Creek, *W May 18, 1965*; April Brook, *W May 24, 1965*; north facing slope south of Guadalupe Parkway near its junction with Radio Road, *McC, W June 11, 1967*. Attractive rose-pink flowers, May.

Brodiaea elegans Hoover. Harvest Brodiaea. Rare, in grassland. Sierra Point, *W June 21, 1965*.

Brodiaea laxa (Bentham) Watson. Grass-Nut. Ithuriel's Spear. Frequent, in grassland. Colma Canyon, *McC, Halde, K June 23, 1963*; Crocker Hills, *W June 8, 1965*; grassland along Radio Road, *W June 16, 1965*; east facing slope below Parking Lot, *McC, Halde June 23, 1963*; Sierra Point, *W May 8, 1965*. Attractive robust plant with blue-purple flowers in umbels which look like a miniature agapanthus, May and June. Ornamental.

Brodiaea pulchella (Salisbury) Greene [*B. capitata* Bentham]. Blue-Dicks. Wild-Hyacinth. Frequent, in grassland or in brush. Colma Canyon, *K May 30, 1964*; Devil's Arroyo, *K 1023*; Bitter Cherry Ravine, *K April 4, 1965*; Crystal Cave Canyon, *W June 19, 1965*; east facing slope below Parking Lot, *McC April 17, 1964*; Randolph Avenue at Hillside Boulevard, South San Francisco, *P 2730*. The congested heads of flowers on weak stems distinguish this species from the other three brodiaeas in our area.

Brodiaea terrestris Kellogg [*B. coronaria* (Salisbury) Engler var. *macro-poda* (Torrey) Hoover]. Rare, on western section of mountain. Near Quarry, *W June 19, 1965*; Radio Road in Eucalyptus area, *McC, W June 11, 1967*. The corms of the species of *Brodiaea* are edible and were used as food by California Indians.

Chlorogalum pomeridianum (DeCandolle) Kunth. Amole. Soap-Plant. Occasional, in grassland. Colma Canyon, *K May 4, 1964*; Trillium Gulch (where there had been a fire during previous autumn), *McC March 28, 1965*; east facing slope below Parking Lot, *McC June 9, 1963*; Sierra Point, *W June 23, 1965*. The wavy-margined leaves appear in winter and spring before the tall flowering branches. The star-like flowers open in the evening or on gray foggy or overcast days. The large underground bulb is covered with old fibrous coats from previous seasons. The bulb which contains a saponin was used by Indians and early settlers for its saponifying effect. The Indians roasted the bulb and used it for food.

Disporum hookeri (Torrey) Nicholson. Rare, in damp ground. Devil's Arroyo, *McC March 28, 1965*. Ornamental.

Fritillaria lanceolata Pursh. Checker-Lily. Mission Bells. Occasional, grassland and rocky or brushy slopes. Sierra Point, *W June 21, 1965*; Radio Road, east facing slope below radio station, *Toschi March 17, 1963*; near Parking Lot at summit, *K 630*; ½ mile east of Parking Lot at summit, *P 2702*; Cable Ravine, *McC March 14, 1965*; Trillium Gulch, *K 990*. Brownish-purple flowers are nodding. Ornamental.

Maianthemum dilatatum (Wood) Nelson & Macbride. False Lily-of-the-Valley. Rare. Rocky outcrop. Kamchatka Point, *McC June 9, 1963*; *Thomas 9288*. *Maianthemum dilatatum* occurs in eastern Asia and western North America and reaches its southernmost known American distribution in San Mateo County. It belongs to a small genus of three species known from the north temperate regions of Eurasia and North America.

Muilla maritima (Torrey) Watson. Rare, in grassland. Guadalupe Road, *L. Rose March 25, 1965*. *Muilla* is an anagram of *Allium*. This yellow-flowered species has an onion-like appearance but its plants lack the odor or taste of onion and the underground part is a corm and not a bulb as in *Allium*.



FIGURE 12. *Fritillaria lanceolata* Pursh.



FIGURE 13. *Trillium chloropetalum* (Torrey) T. J. Howell.

Smilacina racemosa (Linnaeus) Desfontaines var. *amplexicaulis* (Nuttall) Watson. Fat Solomon. Occasional, in grassy and brushy areas. Colma Canyon, *W June 13, 1965*; Devil's Arroyo, *K 1055*; Romanzoffia Ravine, *K May 4, 1964*; Trillium Gulch, *McC March 28, 1965*. Ornamental, with numerous white flowers in a panicle.

Smilacina stellata (Linnaeus) Desfontaines var. *sessilifolia* (Baker) Henderson. Slim Solomon. Occasional, on grassy or brushy areas, sometimes with Fat Solomon, from which it is distinguished by its fewer flowers in a raceme. Colma Canyon, *McC, Halde, K June 23, 1963*; Trillium Gulch, *McC March 28, 1965*; Bitter Cherry Ridge, *K May 4, 1964*; Devil's Arroyo, *K 1056*; Crystal Cave Canyon, *W June 20, 1965*. Ornamental.

Trillium chloropetalum (Torrey) T. J. Howell. Wake-Robin. Rare, in brushy areas under *Baccharis* and *Heracleum*. Devil's Arroyo, *McC March 28, 1965*; Trillium Gulch, *K March 21, 1965*; Colma Canyon, *McC April 11, 1965*. Flowers March and April. The pale purple flowers are sessile and surrounded by the mottled whorled leaves. Ornamental.

Zigadenus fremontii (Torrey) Torrey ex Watson var. *minor* (Hooker & Arnott) Jepson. Zygadene. Rare, in grassland. Point San Bruno, *K March 16, 1964*. Attractive white flowers, February to April. In some species of *Zigadenus*, especially *Z. venenosus*, the death-camas, all parts of the plants are poisonous. Bulbs of all species are suspect.

ORCHIDACEAE. Orchid Family

Habenaria unalascensis (Sprengel) Watson var. *maritima* (Greene) Correll [*H. elegans* (Lindley) Bolander var. *maritima* (Greene) Ames]. Rein Orchis. Rare, grassland or brushy slopes. April Brook, *W August 16, 1965*; Horseshoe Ridge along Radio Road,



FIGURE 14. Fog over top of ridge above the quarry on north side.

K August 5, 1963. Flowers small, greenish in a spike, August and September, each flower with a basal spur. Neither the small flowers of this orchid nor of the following orchids have any ornamental value.

Habenaria unalascensis (Sprengel) Watson var. *elata* (Jepson) Correll. Rein Orchis. Rare. Grassy slope above April Brook, *McC August 1, 1965.*

Habenaria unalascensis (Sprengel) Watson var. *unalascensis*. Rein Orchis. Rare. Quarry, *K July 14, 1963.*

Spiranthes romanzoffiana Chamisso & Schlechtendal. Ladies-Tresses. Rare, in grassland. Radio Road near radio towers, *Marsh Pitman 482.* Small greenish-white flowers in June occur in a spike and lack the spur of the rein-orchis.

TYPHACEAE. Cattail Family

Typha domingensis Persoon. Rare, marshy area in Crocker Hills between Geneva Avenue and Guadalupe Road, *K October 4, 1966.*

Typha latifolia Linnaeus. Broad-leaved Cattail. Soft Flag. Rare, marshy area in Crocker Hills between Geneva Avenue and Guadalupe Road, *K October 4, 1966.* Both of these cattails grew together in the same area which has now been filled for industrial development. With phasing out of this habitat these two species probably no longer exist in our area.

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